No.01

Oki Data CONFIDENTIAL

C830/C821(*1)

Maintenance Manual

(ODA/OEL/AOS)

[Rev. 2]

(*1)C821 : OEL only model

Related drawings

Drawing No.	Name
44015501TL	C830 Series Color LED Page Printer Disassembly for Maintenance
44015501TR	C830 Series Color LED Page Printer RSPL

BOM		Use for		Certification Body	
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PREFACE

This manual explains the maintenance methods for the C830/C821.

The manual has been prepared for use by the maintenance personnel. For operating methods of the C830/C821, refer to the corresponding user's manual.

Note!

- The contents of this manual are subject to changes without prior notice.
- Despite that exhaustive efforts were made in preparing the manual to make it accurate, it still may contain errors. Oki Data will not hold itself liable for any damage that results or is claimed to have resulted from repair, adjustment, or modification of the printer conducted by the user using this manual.
- The parts employed in the C830/C821 printer are so delicate that they may be damaged if not treated properly. Oki Data Corporation highly recommends that the maintenance of the printer is undertaken by ODC's registered maintenance personnel.
- Work after eliminating static electricity.

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1. CONFIGURATION

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1.1 System configuration

Figure 1-1 represents the system configuration of the C830/C821.

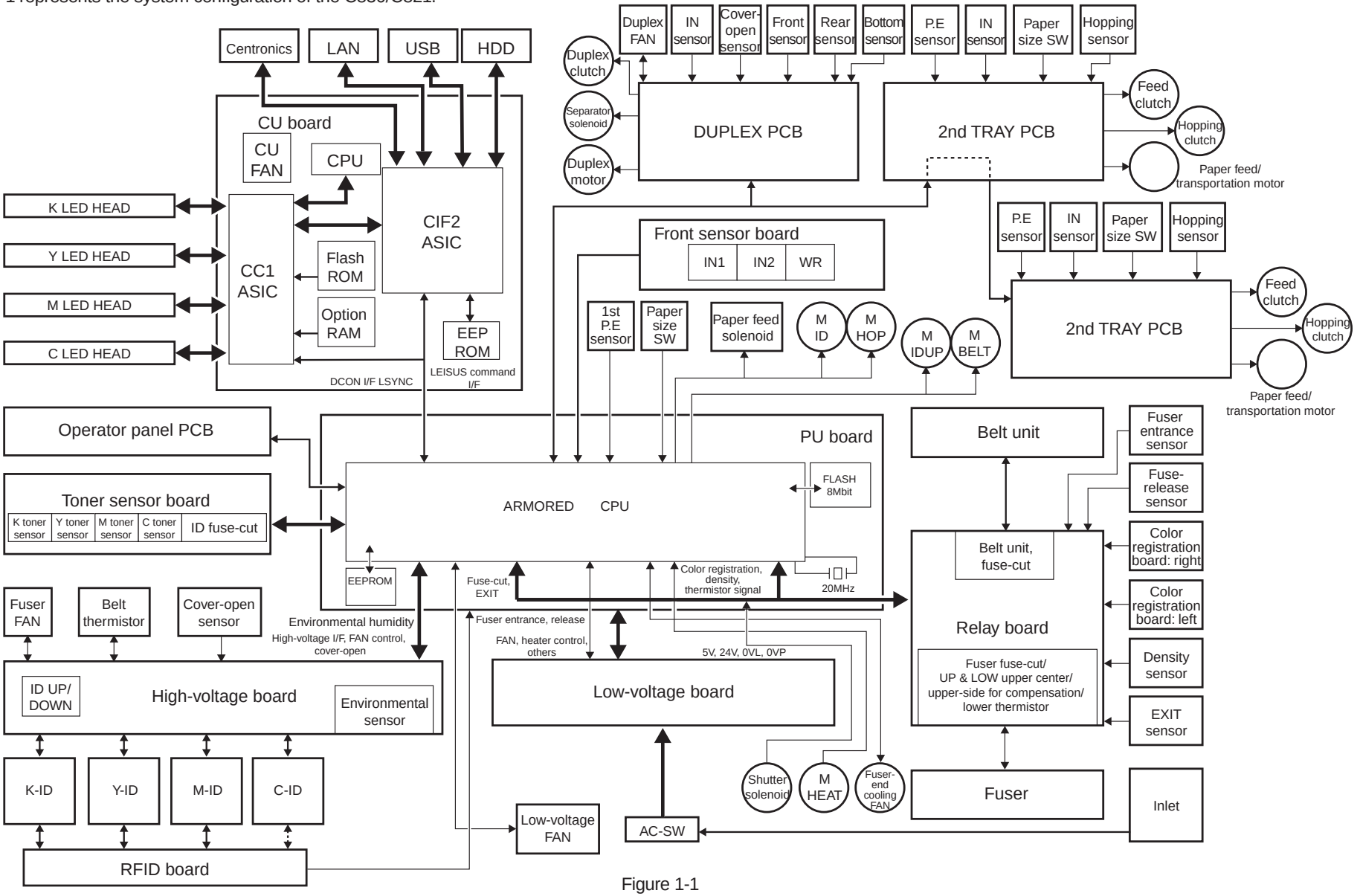


Figure 1-1

1.2 Printer configuration

The internal part of the C830/C821 printer is composed of the following sections:

- Electrophotographic processing section
- Paper paths
- Controllers (CU/PU)
- Operator panel
- Power supplies (high-voltage power supply/low-voltage power supply)

Figure 1-2 represents the configuration of the printer.

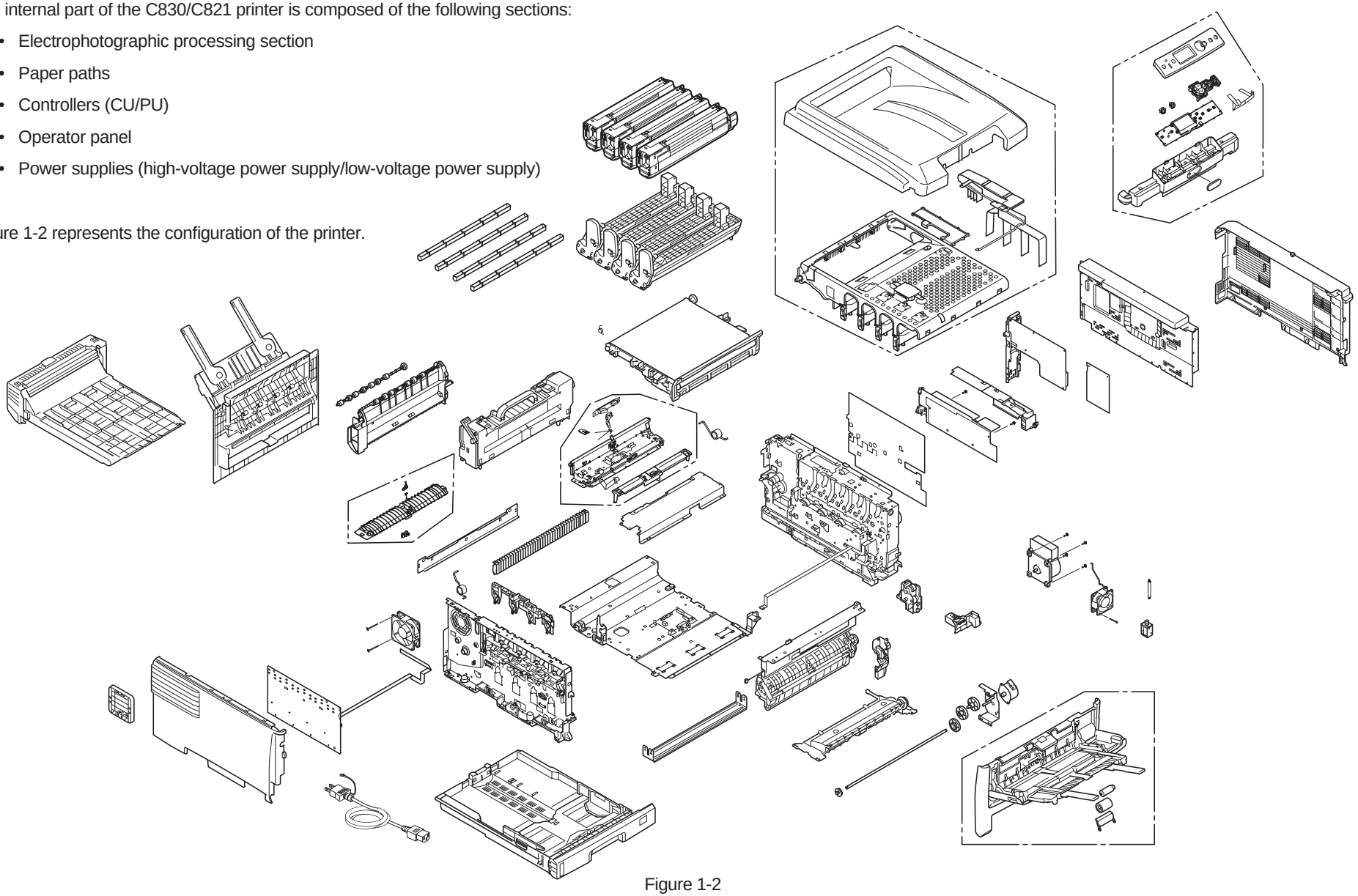
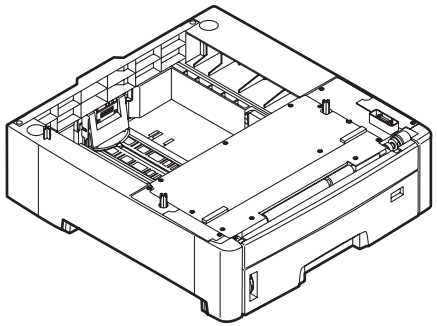


Figure 1-2

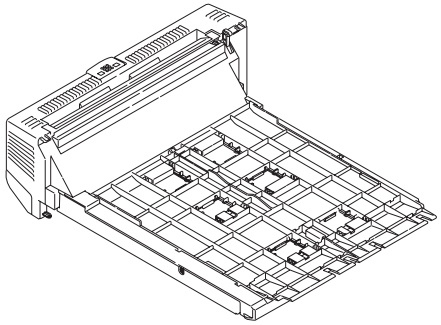
1.3 Composition of optional items

The following optional items are available for the C830/C821 printer:

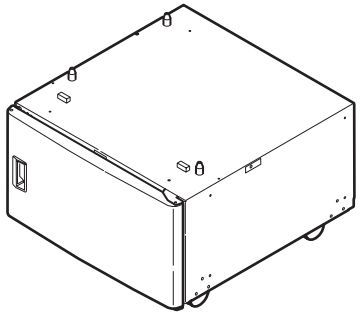
(1) Additional tray



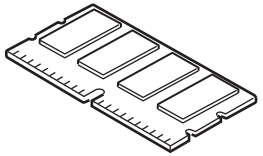
(2) Duplex-Unit



(3) Cabinet

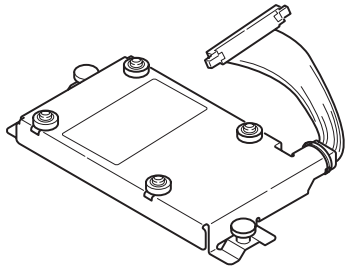


(4) Additional memory



Model name	Capacity
MEM256E	256 MB
MEM512C	512 MB

(5) Internal hard disk



Memo Internal hard disks for C830/C821 are incompatible with those for C5900.

(6) Data protection kit A3

1.4 Specifications

Classification	Item	Specification(s)	
Dimension	Width	485 mm	
	Depth	593 mm	
	Height	345 mm	
	Weight	Approx. 40 kg	
Line length	Line length	A4 LEF	
Print speed	Engine speed (A4)	30 PPM (color:C830), 22PPM (color:C821) 32 PPM (mono:C830/C821)	
Print start	First print time	9.5 sec. (mono:C830/C821) 10 sec. (color:C830), 11.5sec. (color:C821) (A4LEF)	
	Warm-up time	90 sec.	
	Low-noise mode	Unavailable	
Resolution	LED head	600dpi	
	Maximum input resolution	600×1200dpi	
	Output resolution	True 600 × 1200dpi True 600 × 600dpi	
	Gradation	600 × 600 dpi, four gradations	
	Econo mode	Toner saving by decreasing brightness	
CPU	Core	PowerPC750	
	I-cache/D-cache	L2=256KB	
	Clock	700MHz	
	Bus width	64bit	
RAM	Resident	256 MB (768 MB max.)	
ROM	Program + font	64MB	
Power consumption	Power input	120VAC±10%	230VAC±10%
	Power save mode	17W or less	
	Idle	200W (average)	
	Normal operation	570W (differs depending on the use environment)	
	Peak	1350W	

Classification	Item	Specification(s)
Operating environment (temperature)	Operating	10°C to 32°C, 17°C to 27°C (temperature for full-color print quality guaranteed)
	Non-operating	0°C to 43°C, power off
	Storage (one year max.)	-10°C to 43°C, with drums and toner cartridges
	Transportation (one month max.)	-29°C to 50°C, with drums but no toner cartridges
	Transportation (one month max.)	-29°C to 50°C, with drums and toner cartridges
Operating environment (humidity)	Operating	20% to 80%, 50% to 70% (humidity for full-color print quality guaranteed) Maximum wet-bulb temperature: 25°C
	Non-operating	10% to 90%, maximum wet-bulb temperature: 26.8°C, power-off
	Storage	10% to 90%, maximum wet-bulb temperature: 35°C
	Transportation	10% to 90%, maximum wet-bulb temperature: 40°C
Service life	Printer life	600,000 pages (A4 LEF), five years
	Print duty (M=L/12, A=L/12/5)	Maximum 50,000 pages/month Average 10,000 pages/month
	MTBF (2.3% duty)	Not applicable
	MPBF	100,000 pages
	MTTR	Within 20 minutes
	Toner life (based on ISO/IEC 19798)	Starter toner (supplied with the C830/C821): 2,300 pages (black) 2,300 pages (color)
		Standard: 8,000 pages (black) 8,000 pages (color):C830 7,000 pages (black) 7,300 pages (color):C821 S type: 2,500 pages (black) 2,500 pages (color)
	Image drum life	20,000 pages (3 pages/job) 11,000 pages (1 page/job) 27,000 pages (when printed continuously) Drum counter automatic reset

Classification	Item	Specification(s)
Service life	Transfer belt life	80,000 pages (A4 LEF, 3 pages/job), counter automatic reset
	Fuser unit life	100,000 pages (A4), counter automatic reset
Operation noise	Operating	54 dBA (ISO 7779 Front) (without any optional unit)
	Standby	37 dB (ISO 7779 Front)
	Power save mode	Background level
Paper handling	Tray capacity (1st tray)	Legal/universal cassette: 300 sheets (70 kg)
	Tray capacity (2nd/3rd tray)	Legal/universal cassette (option): 530 sheets (70 kg)
	Tray capacity (manual/ auto)	Standard multipurpose tray: 100 sheets (70 kg) or 10 envelopes
	Paper ejection	250 sheets (70 kg) to the face down stacker, 100 sheets (70 kg) to the face-up stacker
	Duplex	Standard
Paper size		A3, A4, A5, A6*, B4, Letter, Legal (13/13.5/14 inches), Executive, postcard**, double-postcard**, Custom***, envelope (Choukei 3, Youkei 0, Youkei 4, Kakugata 2, Kakugata 3.) *: A6 size paper cannot be printed from trays 2 and 3. **: Postcards and double-postcards can be printed only from the MPT. ***: As for Custom, the available size differs depending on trays.
Minimum paper size	Tray 1	A6
	Tray 2, Tray 3 (options)	A5
	MPT	Postcard
Media weight	Tray 1	64 g/m^2 to 120 g/m^2
	Tray 2, Tray 3 (options)	64 g/m^2 to 175 g/m^2
	MPT	64 g/m^2 to 220 g/m^2

Classification	Item	Specification(s)
Operator panel	LCD	Graphic panel with 128 × 64 dots, no display of paper size
	LED (color)	2 LEDs (green × 1, dark amber × 1)
	Switch	8 switches
Status switch/ sensor	Paper out	Provided
	Paper low	Not provided
	Toner low	Provided (Y, M, C, K)
	Cover open	Provided
	Fuser temperature	Provided
	Paper size	Provided (manual setting)
	Stacker full	Not provided
Communica-tion interface	Standard (on-board)	• High-speed USB • Ethernet • Parallel interface
	Option	N/A
	Input/output switch	Automatic
Emulation	Standard	PCL (PCL5c, HP-GL) / PCL XL 2.1
		PostScript 3 (Clone)
	Emulation switch	Automatic
Font	Bit-map typeface	Provided
	Scalable font	Provided
	Rasterizer	Provided
	Barcode	Provided
	OCR	Provided
	Japanese PCL font	Provided
	Japanese PS font	Provided

Classification	Item	Specification(s)
Option (removable)	RAM	256/512 MB DIMM
	User-installable 2.5” IDE HDD	• Standard internal hard disk • Data protection kit A3
	Tray configuration	2nd tray and 3rd tray
	Cassette	Universal (530 sheets)
	Duplex unit	Provided
	Long-sheet supporter	Not provided
	Others	Unavailable
Factory setting	Japan	PCL + PS model
Other	USB-IF logo	Provided
	Windows logo	Provided
	Operation with UPS or inverter	Proper operation by use of a UPS (uninterruptible power supply) or an inverter is not guaranteed. Do not use a UPS and an inverter.

1.5 Interface specifications

1.5.1 USB interface specifications

1.5.1.1 USB interface overview

(1) Basic specifications

USB (Hi-Speed USB supported)

(2) Transmission mode

Full speed (Max. 12 Mbps ± 0.25%)

High speed (Max. 480 Mbps ± 0.05%)

(3) Power control

Self-powered device

1.5.1.2 USB interface connectors and cables

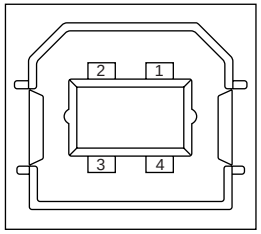
(1) Connector

• Printer side: B-receptacle (female)

Upstream port

Product equivalent to UBR24-4K5C00 (Made by ACON)

Connector pin arrangement



• Cable side: B-plug (male)

(2) Cables

Length: USB 2.0 cables no more than five meters long (two meters or less recommended)

(Shielded USB 2.0 cables shall be used.)

1.5.1.3 USB interface signals

	Signal name	Function
1	Vbus	Power (+5V)
2	D-	For data transfer
3	D+	For data transfer
4	GND	Signal ground
Shell	Shield	

1.5.2 Network interface specifications

1.5.2.1 Network interface overview

Basic specifications

TCP/IP spec. Network layer

ARP, IP, ICMP, IPv6

Transport layer

TCP, UDP

Application layer

LPR, Port9100, FTP, HTTP, HTTPS, IPP, SNMPv1/v3, TELNET, DHCP/BOOTP, DNS, DDNS, WINS, UPnP, Bonjour, SNTP, SMTP, POP, Windows Rally (WSD Print, LLTD)

NetBEUI: SMB, NetBIOS

NetWare: Remote printer mode (maximum eight print servers)

Print server mode (maximum eight file servers, 32 queues)

Support of encrypted passwords (in print server mode)

NetWare 6J/5J/4.1J (NDS, bindery)

SNMP

EtherTalk: ELAP, AARP, DDP, AEP, NBP, ZIP, RTMP, ATP, PAP

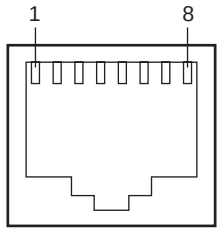
IEEE 802.1X: EAP-TLS, PEAP

1.5.2.2 Connector and cable of network interface

(1) Connector

100BASE-TX/10 BASE-T (automatically switched, not usable simultaneously)

Connector pins arrangement



(2) Cable

Non-shield twisted-pair cable with RJ-45 connector (Category 5 recommended)

1.5.2.3 Network interface signals

Pin No.	Signal name	Direction	Function
1	TXD+	FROM PRINTER	Transmitting data +
2	TXD-	FROM PRINTER	Transmitting data -
3	RXD+	TO PRINTER	Receiving data +
4	–	–	Not in use
5	–	–	Not in use
6	RXD-	TO PRINTER	Receiving data -
7	–	–	Not in use
8	–	–	Not in use

1.5.3 Parallel interface specifications

1.5.3.1 Parallel interface overview

Item	Details
Supported modes	Compatible mode, nibble mode, ECP mode
Data bit length	Compatible mode: 8 bit, Nibble mode: 4 bit, ECP mode: 9 bit

1.5.3.2 Connector and cable of parallel interface

(1) Connector

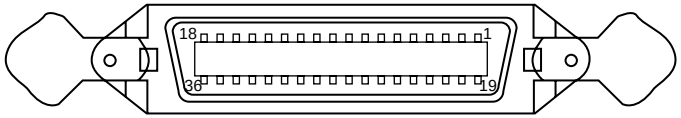
Printer side: 36-pole connector (female)

Product equivalent to 57LE-40360-12 (D56) (DDK Ltd.)

Cable side: 36-pole connector (male)

Product equivalent to 57FE-30360-20N (D8) (DDK Ltd.)

Pin arrangement on the interface cable side



(2) Cable

Use a cable of 1.8 m or less.

(Use a shielded twisted-pair cable for noise prevention.)

1.5.3.3 Parallel interface levels

Low level: 0.0V to +0.8V

High level: +2.4V to +5.0V

2. DESCRIPTION OF OPERATION

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2.1 Electrophotographic process mechanism

(1) Electrophotographic process

The electrophotographic process is explained briefly below:

1. Charging

   A voltage is applied to the CH roller to electrically charge the surface of the OPC drum.

2. Exposure

   The LED head radiates light onto the charged OPC drum in accordance with the image signal. The electric charge of the radiated part of the OPC drum surface attenuates depending on the intensity of the light, thus forming an electrostatic latent image on the OPC drum surface.

3. Development

   Charged toner adheres to the electrostatic latent image of the OPC drum by electrostatic power, and forms a visible image on the OPC drum surface.

4. Transfer

   Paper is placed over the OPC drum surface and an electric charge is applied to it from the backside by the transfer roller, so that the toner image is transferred to the paper.

5. Drum cleaning

   The drum cleaning blade removes toner remaining on the OPC drum after the transfer.

6. Belt cleaning

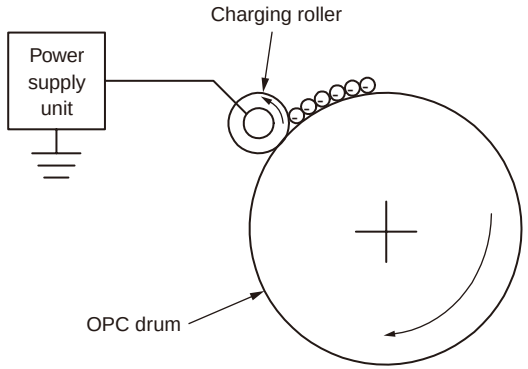
   The belt cleaning blade removes toner remaining on the belt.

7. Fusing

   Heat and pressure are applied to the toner image on the paper to promote its fusion.

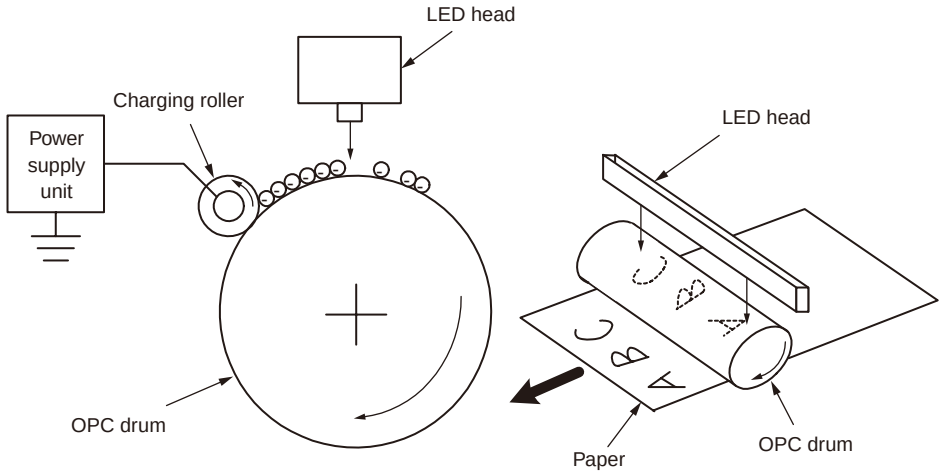
(2) Charging

A voltage is applied to the charging roller, which is placed in contact with the OPC drum surface, to charge the OPC drum surface.



(3) Exposure

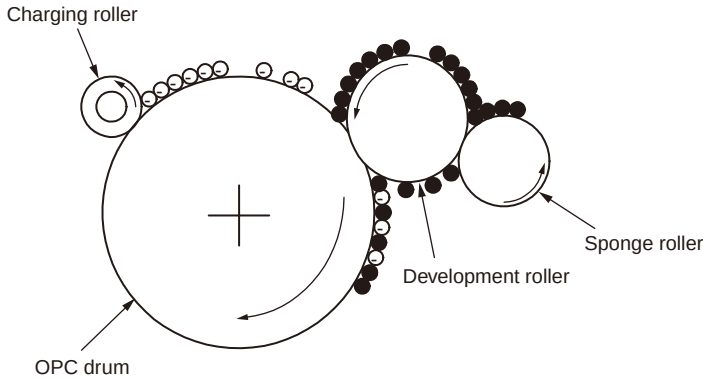
The light emitted from the LED head is radiated onto the charged surface of the OPC drum. The charge of the radiated part of the OPC drum attenuates according to the intensity of the light, forming an electrostatic latent image on the OPC drum surface.



(4) Development

Toner adheres to the electrostatic latent image on the drum surface, thereby turning the electrostatic latent image into a toner image.

1. The sponge roller allows the toner to stick to the development roller.

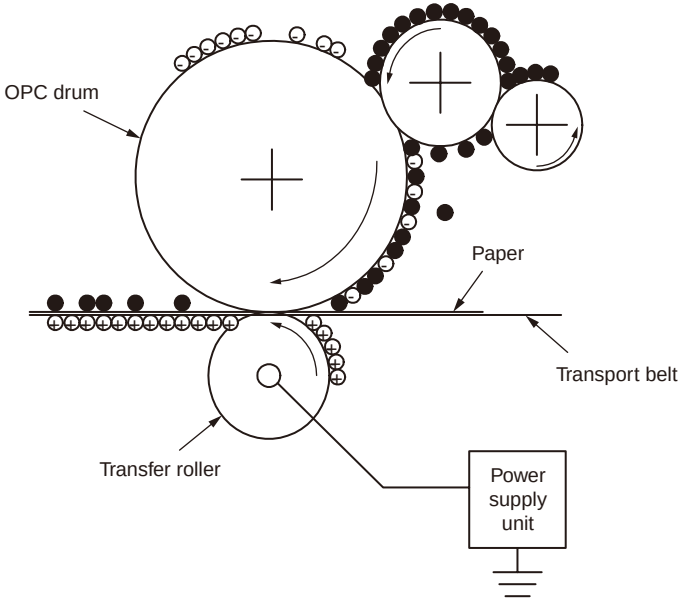


2. The electrostatic latent image on the OPC drum surface is turned into a visible image by the toner.

(5) Transfer

A sheet of paper is placed over the OPC drum surface, and an electric charge is given to the paper from its backside by the transfer roller.

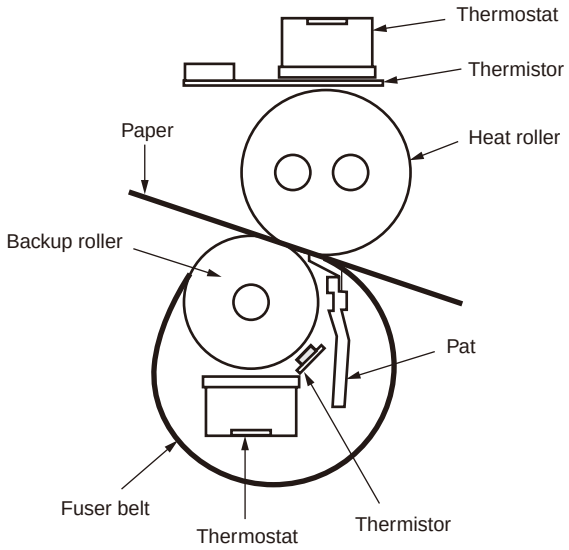
When a high voltage is applied to the transfer roller from the power source, the charge induced on the transfer roller moves on to the surface of the paper through the contact part between the transfer roller and the paper, the toner being attracted to the paper surface from the OPC drum surface.



(6) Fusing

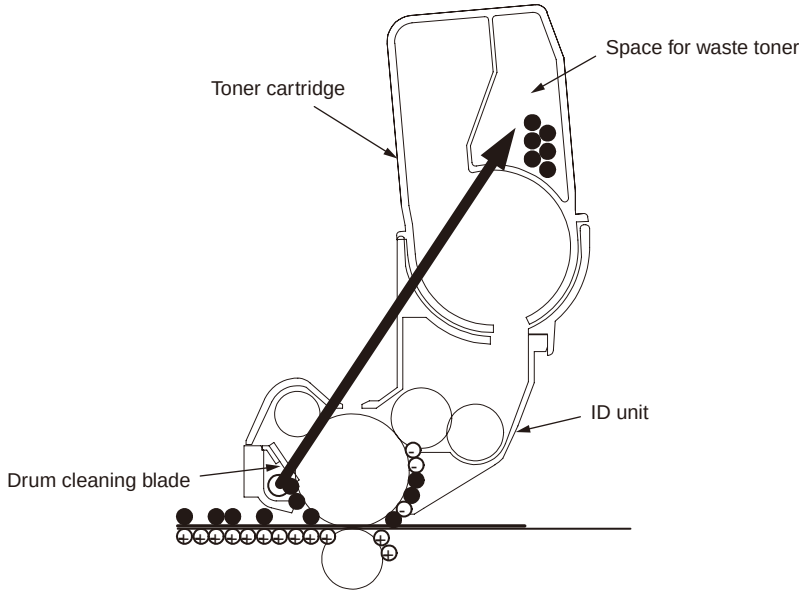
The toner image transferred on the paper is fused on the paper by heat and pressure when the paper passes through the heat roller and backup roller.

The heat roller is heated by 800W and 350W internal halogen lamps, and the backup roller is heated by a 50W internal halogen lamp. The fuser temperature is controlled according to the sum of the temperature that is not contacted with the thermistor ground against the heat roller surface and the temperature that is detected with the thermistor ground on the backup roller surface. There is also a thermostat for safety purposes. When the heat roller temperature rises above a certain temperature, the thermostat opens and shuts down the power supplied to the heater. The backup roller unit is pressed against the heater with a press spring on both sides.



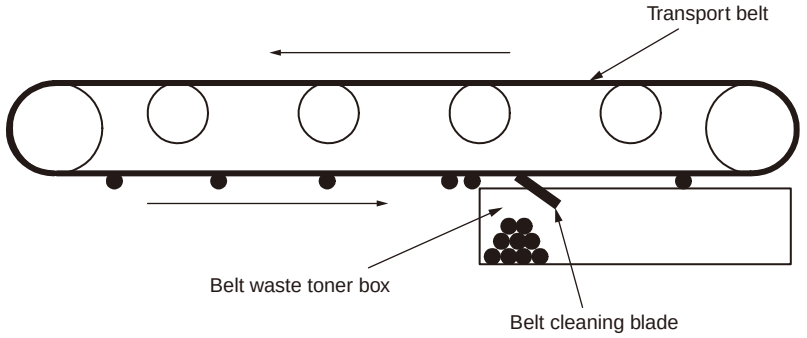
(7) Drum cleaning

Unfixed toner remaining on the OPC drum is removed by the drum cleaning blade and collected into the waste toner area of the toner cartridge.



(8) Belt cleaning

Toner remaining on the transfer belt is scraped off by the belt cleaning blade and collected into the waste toner box of the transfer belt unit.

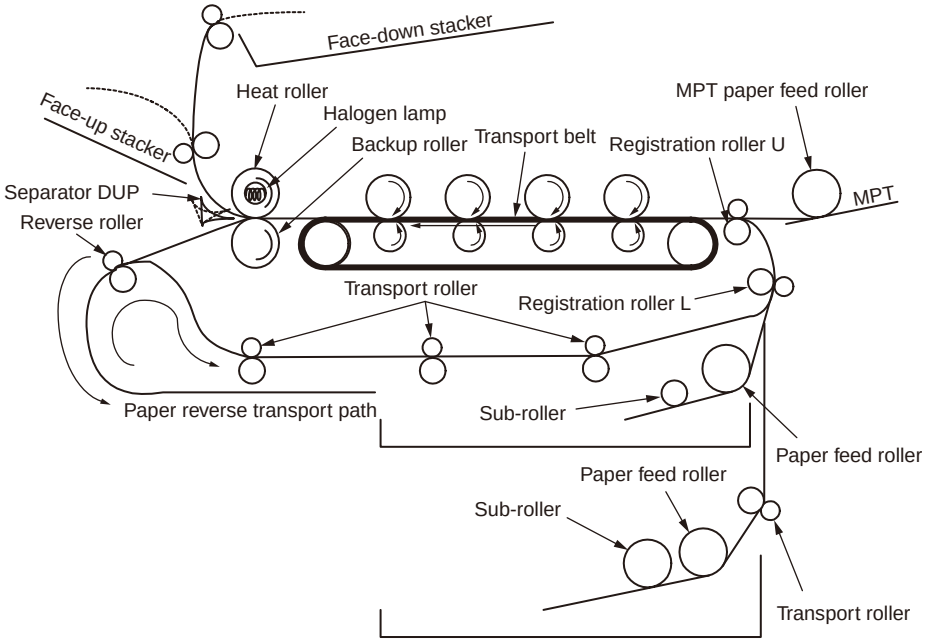


2.2 Printing process

The paper fed from Tray 1 or Tray 2 is carried by the paper feed roller, the registration roller L, and the transport roller. When the paper is fed from the MPT, it is carried by the MPT paper feed roller and the registration roller U. Then, an unfixed toner image is created on the paper transported onto the belt sequentially through the electrophotographic process of KYMC. Thereafter, the image is fixed under heat and pressure as the paper goes through the fuser unit. After the image has been fixed, the paper is ejected to a face-up stacker or to a face-down stacker, according to the outputting method selected by opening or closing of the face-up stacker.

While the above refers to the one-sided print operation of the printer, its operation in two-sided print will be explained below.

When two-sided print is conducted, the paper that has passed through the fuser unit following first one-sided print is sucked into the Duplex unit by the separator DUP. After entering the paper reverse transport path, the paper is carried from there to the inside of the Duplex unit by the inverting operation of the reverse roller. Then, after passed through the Duplex unit by the transport roller that is located on the transport path inside the Duplex unit, the paper is fed along the paper feed route of the Duplex unit to eventually merge the same route that comes from the tray. From here on, the same operation as that of one-sided print of paper fed from the tray takes place.



(1) Paper fed from 1st Tray

1. As illustrated in Figure 2-1, when the solenoid is ON, the registration motor rotates (counterclockwise), transporting the paper until the IN1 sensor comes ON. (When the solenoid is ON, the paper feed roller is driven.)
2. After causing the IN1 sensor to come ON, the paper is further carried over a certain distance to finally hit the registration roller L. (This corrects skew of the paper.)
3. As shown in Figure 2-2, the solenoid is turned OFF, and the paper is carried by the registration roller L. (When the solenoid is OFF, the registration roller L is driven.)

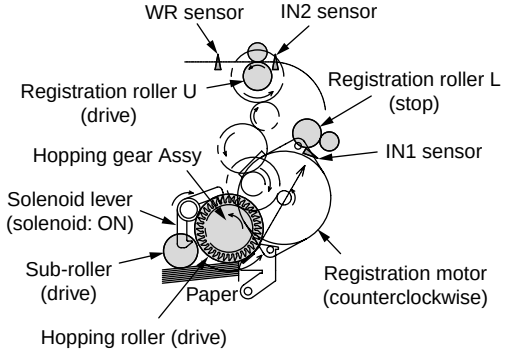


Figure 2-1

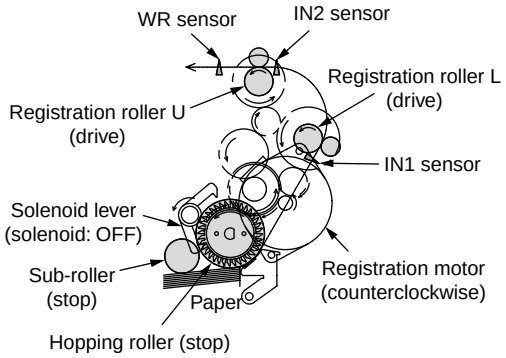


Figure 2-2

(2) Paper fed from MPT

1. As illustrated in Figure 2-3, when the solenoid is OFF, the registration motor rotates (clockwise), transporting the paper until the IN2 sensor comes ON. (As the registration motor rotates clockwise, the MPT paper feed roller is driven.)
2. After causing the IN2 sensor to come ON, the paper is further carried over a certain distance to finally hit the registration roller U. (This corrects skew of the paper.)
3. As shown in Figure 2-4, the registration motor rotates (counterclockwise) to let the registration roller U transport the paper. (As the registration motor rotates counterclockwise, the registration roller U is driven.)

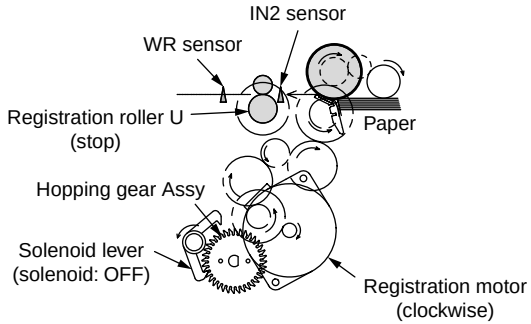


Figure 2-3

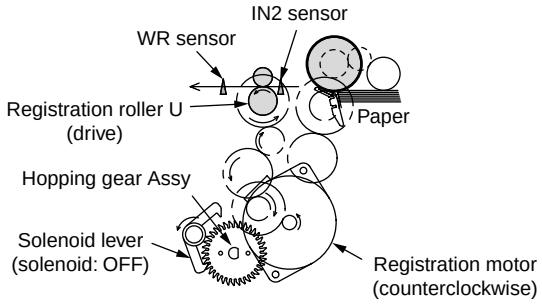


Figure 2-4

(3) Transport belt

1. As the transport belt motor rotates in the direction of the arrow, the transport belt is driven. The belt unit consists of one transport roller placed immediately underneath each color drum, with a transport belt inserted in between them.

   As the specified voltage is applied, the transport belt and the transport rollers carry the paper on the transport belt to the fuser unit as transferring the toner images present on each color drum to the paper.

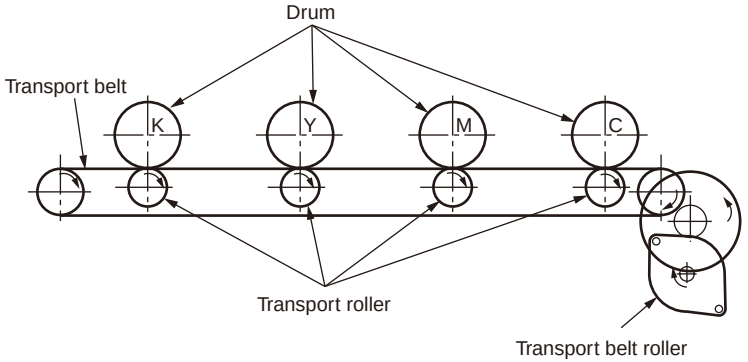


Figure 2-5

(4) Up/down-motions of ID units

1. The up/down-motions of the ID units take place driven by the lift-up motor.
2. Figure 2-6 shows the motions of the different ID units when the printer is operated for color print. As the lift-up motor rotates (clockwise), the lift-up link slides to the left, causing the ID units to come down, as can be seen in Figure 2-6. Namely, the printer is readied for color print.
3. Figure 2-7 shows the motions of the different ID units when the printer is operated for monochrome print. As the lift-up motor rotates (counterclockwise), the lift-up link slides to the right, causing the ID units to go up, except for the K-ID unit, as can be seen in Figure 2-7. Namely, the printer is readied for monochrome print.

ID unit operations during color printing

C-ID unit	Down
M-ID unit	Down
Y-ID unit	Down
K-ID unit	Down

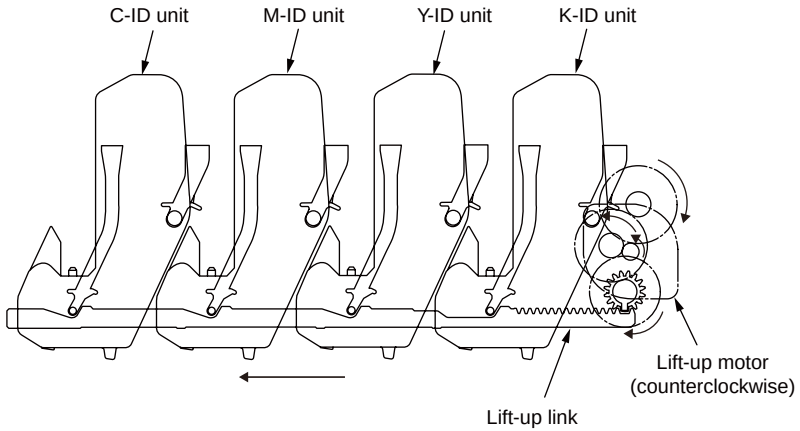


Figure 2-6

ID unit operations during monochrome printing

C-ID unit	Lift up
M-ID unit	Lift up
Y-ID unit	Lift up
K-ID unit	Down

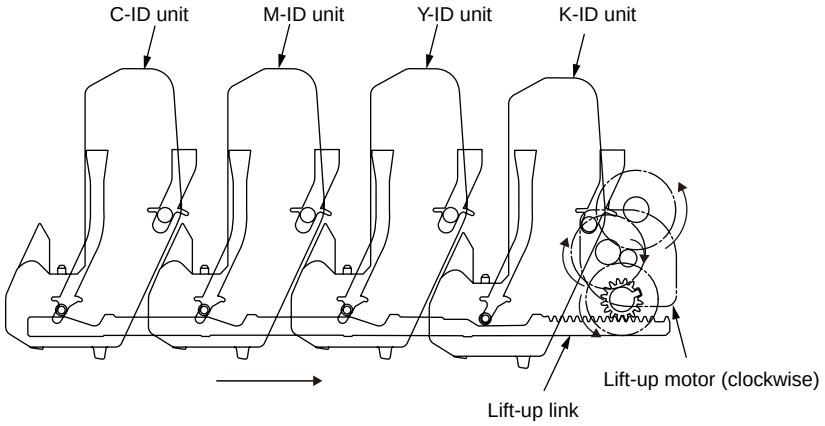


Figure 2-7

(5) Fuser unit and paper ejection

1. As illustrated in Figure 2-8, the fuser unit and the eject roller are driven by the DC motor. As the fuser motor rotates (counterclockwise), the heat roller rotates. This roller fixes toner images by heat and pressure.
2. At the same time, the eject rollers rotate and eject printouts.

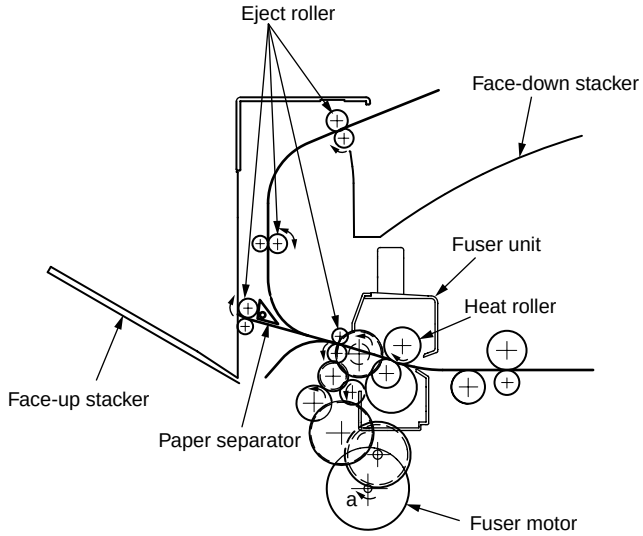


Figure 2-8

(6) Cover-opening motion of the color registration sensor and the density sensor

1. As illustrated in Figure 2-9, when the solenoid is energized, the link lever moves, causing the cover of the color registration sensor and the density sensor to open.
2. As the solenoid is de-energized, the spring pushes the cover, causing the cover of the color registration sensor and the density sensor to close.

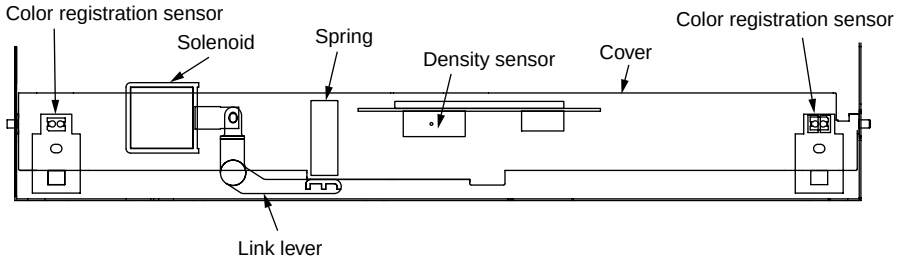


Figure 2-9

Outline of color registration correction

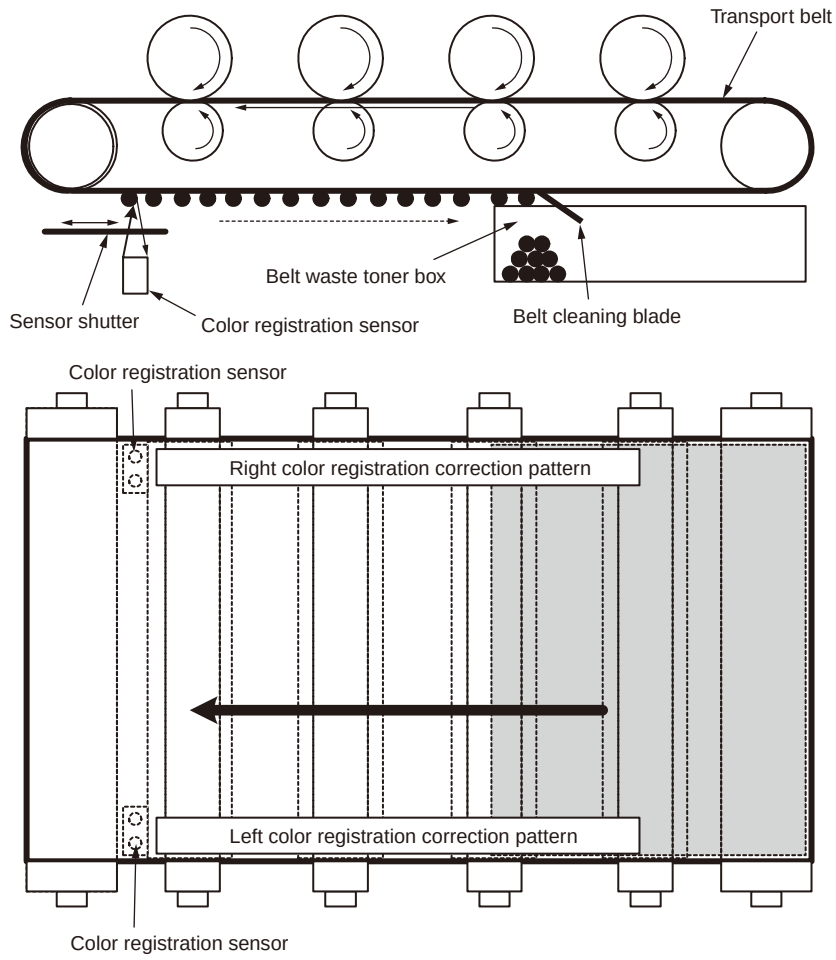
The color registration is corrected by reading correction patterns that are printed on the belt with the color registration sensors located inside the sensor shutter under the belt unit. These sensors are used to detect and correct color registration.

Automatic start timing of color registration correction

- At power-on
- When the cover is closed after it is opened for five seconds or more
- When 400 pages or more have been printed after the previous correction

A correction error may be issued due to an inadequate toner amount of the pattern generated, a sensor stained with toner, deficient opening/closing of the shutter, or for other reasons. However, even if an error is issued, it is not indicated on the operator panel.

Therefore, forcible color registration correction will have to be performed in the self-diagnostic mode (section 5.3.2.6) to check the error indication.



Error checking methods and remedial methods

The color registration correction test function among the other self-diagnostic functions is employed to check errors. (Section 5.3.2.6)

Remedial methods against different errors

- CALIBRATION (L or R), DYNAMICRANGE (L or R)

  Check 1: If the above indication appears, check the connected state of the sensor cable (FFC).
  If the connected state is found abnormal, restore it to the normal state.

  Check 2: Check to see whether the sensor surface is stained with toner, paper dust or any other foreign matter.
  If it is found stained, wipe it clean.

  Check 3: Check to see whether the sensor shutter opens and closes normally, by the MOTOR & CLUTCH TEST of the self-diagnostic function. If the shutter operates imperfectly, replace the shutter unit.
  If no problem was found by the checks 1 through 3, there is a problem with the circuit.

  Replace each of the color registration sensor PCBs (PRC PCB), the relay board (P6Y PCB), the PU board (PU PCB) and the cable one by one and check that no error will occur again.

- BELT REFLX ERR

  Check 4: If this indication appears, check the cleaned state of the toner remaining on the belt surface, in addition to making the above checks 1, 2 and 3. Take out the belt unit, turn the drive gear located on the left rear side, and ensure that the belt surface has been cleaned thoroughly.
  If cleaning is not achieved perfectly and there still remains toner on the belt surface after the drive gear has been turned, replace the belt unit.

- (Y or M or C) LEFT, (Y or M or C) RIGHT, (Y or M or C) HORIZONTAL

  Check 5: If the above indication appears, check to see whether the toner is running short, based on an NG-issuing color.
  Replace the toner cartridge, as needed.

Outline of density correction

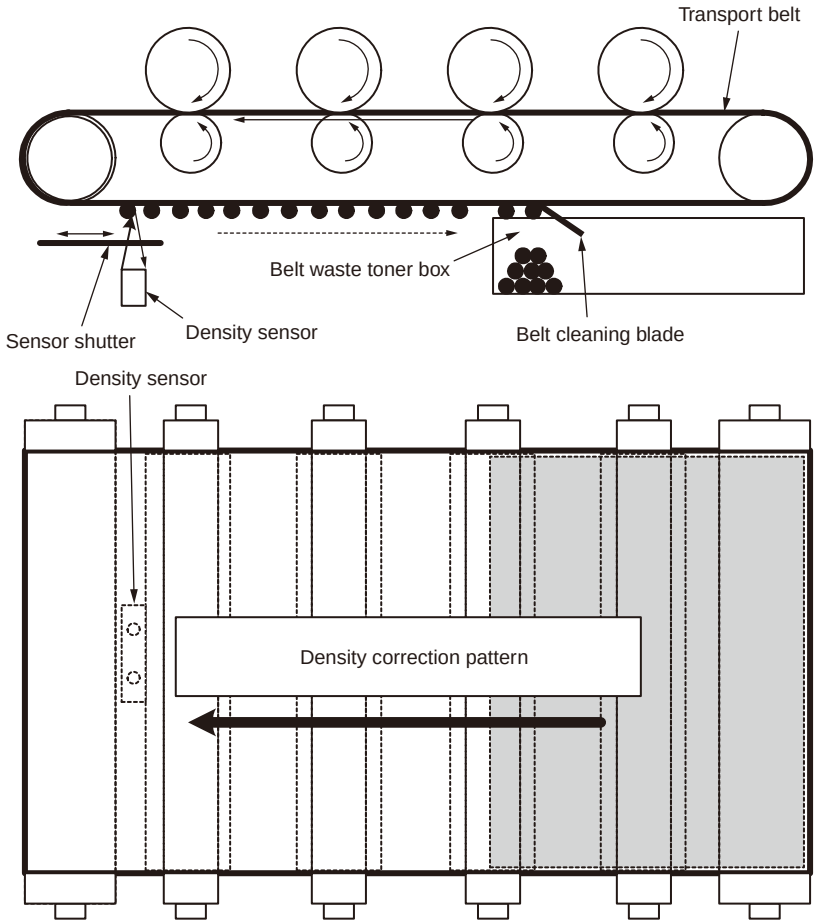
The density is corrected by reading the correction pattern that is printed on the belt with the density sensor located inside the sensor shutter under the belt unit.

Automatic start timing of density correction:

- At power-on
- When the ID count after the previous correction exceeds 500

A correction error may be issued due to an inadequate toner amount of the pattern generated, a sensor stained with toner, deficient opening/closing of the shutter, or for other reasons.

However, even if an error is issued, it is not indicated on the operator panel. Therefore, forcible density correction will have to be performed in the self-diagnostic mode (section 5.3.2.7) to check the error indication.



Error checking methods and remedies

The density correction test function among the other self-diagnostic functions is employed to check errors. (Section 5.3.2.7)

Remedial methods against different errors

- CALIBRATION ERR, DENS SENSOR ERR

  Check 1: If the above indication appears, check the connected state of the sensor cable.

  If the connected state is found abnormal, restore it to the normal state.

  Check 2: Check to see whether the sensor surface is stained with toner, paper dust or any other foreign matter.

  If it is found stained, wipe it clean.

  If no problem was found by the checks 1 and 2, there is a problem with the circuit.

  Replace each of the DENS SENSOR, the relay board (P6Y PCB), the PU board (PU PCB) and the cable one by one and check that no error will occur again.

- DENS SHUTTER ERR

  Check 3: Check to see whether the sensor shutter opens and closes normally, by the MOTOR & CLUTCH TEST of the self-diagnostic function. If the shutter operates imperfectly, replace the shutter unit.

- DENS ID ERR

  Check 4: Take out the ID units and examine them to see if the drum surface has any abnormal toner smudge.

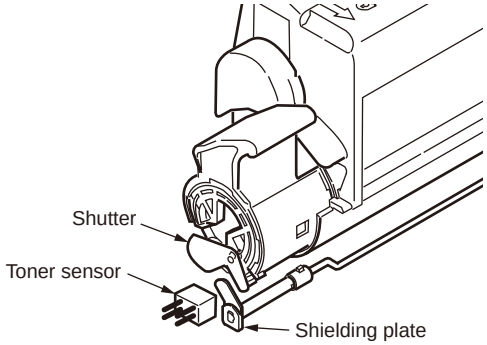
  Replace the LED head (out-of-focus), or replace any ID units with any abnormality.

  To test-operate a new ID unit, use the Fuse Keep Mode of the maintenance menu.

Principle of toner sensor detection

Toner LOW is detected by the toner sensor (Reflection sensor) installed inside the printer. The shielding plate is mounted inside the ID and rotates in synchronization with toner agitation.

Moreover, the ID has a shutter fitted. The shutter is synchronized with the operation lever of the toner cartridge, and the toner sensor can detect that the toner cartridge has been loaded properly. Detection may not take place normally, and a toner sensor error may be issued, if the shield plate or toner sensor is stained with toner, or if the ID unit and toner sensor do not remain exactly opposite to each other in their positions.



Principle of the toner counter

After image data is developed to binary data that the printer can print, the LSI counts the data as a number of print dots. The amount of toner consumed is calculated from that count value, and the remaining amount of toner is thus indicated. As opposed to this, the toner LOW detection by the toner sensor is implemented when the toner amount remaining inside the ID unit physically decreases to below a certain level.

Principles of ID, belt, and fuser counters

ID counter: One count represents the value that results from dividing the amount of rotation of the drum by three when three A4-size sheets are printed continuously.

Belt counter: One count represents the value that results from dividing the amount of rotation of the belt by three when three A4-size sheets are printed continuously.

Fuser counter: One count is registered when paper is shorter than the length of Legal 13-inch paper. When paper is longer than that, the count number is determined by the number of times the Legal 13-inch paper length is exceeded. (Rounding up of decimal fractions)

Counter specifications

	Total page count	MPT page count	Tray 1 page count	Tray 2 page count	Tray 3 page count	Color page count	Monochrome page count
Description	Total number of prints	Number of print media hopped from MPT	Number of print media hopped from Tray 1	Number of print media hopped from Tray 2	Number of print media hopped from Tray 3	Total number of color prints	Total number of monochrome prints
Count method: A4-basis or size independence	Count up after passing the writing sensor	Count up if MPF (MPT) hopping is finished successfully	Count up if Tray 1 hopping is finished successfully	Count up if Tray 2 hopping is finished successfully	Count up if Tray 3 hopping is finished successfully	The number of print media passing the fuser in color mode is counted when each job is finished. (1*) The value is counted on an A4/Letter basis. Refer to A4/Letter conversion table (on the next page).	The number of print media passing the fuser in monochrome mode is counted when each job is finished. (1*) Printing speed for color mode may be applied to monochrome mode. The value is counted on an A4/Letter basis. Refer to A4/Letter conversion table (on the next page).
Operation when paper has jammed	Printed pages are not counted when a paper feed (hopping) jam or a feed jam (380) occurs. Printed pages are counted when any jam except the said jams occurs. Since the total number of prints is counted up when the front end of print media passes the writing sensor, a feed jam (380) is also included into the limits for counted according to its jam type.					Printed pages are not counted if paper jams before passing the fuser. They are counted if prints jam after passing the fuser.	
Operation for Duplex	Front/back count (+2)	Only front count (+1)				The count increases by two. If a color page and a monochrome page exist in a pair of two pages, the color page count increases by two. If no color page exits in a pair of two pages, the monochrome page count increases by two.	
Reset condition	None	None				(1) Replacement of ROM with another one of a different version. (2) Change of the shipping destination (3) Running of MENU RESET of the system maintenance menu (4) Replacement of a CU board	
Value storage destination	PU	PU	PU	PU	PU	CU	CU
Menu/MenuMap output	○	○	○	○	○	○	○
EngineMenuMap output	○	○ (*2)	○ (*2)	○ (*2)	○ (*2)	–	–

*1. The count is not updated if the power is turned off when a paper jam occurs.

*2. EngineMenuMap outputs Engine Menu Print (the first page) and Engine EEPROM Dump Print (the last page), and the number of sheets of paper fed from each tray is described only in the latter one (Dump page only).

A4/Letter conversion table

Each count should increase, in relation to every sheet of paper, by the values in the table below.

Paper size	Simplex	Duplex
LETTER	1	2
EXECUTIVE	1	2
LEGAL14	1	2
LEGAL13.5	1	2
LEGAL13	1	2
TABLOIDEXTRA	2	4
TABLOID	2	4
A3 NOBI	2	4
A3 WIDE	2	4
A3	2	4
A4	1	2
A5	1	2
A6	1	2
B4	2	4
B5	1	2
COM-9	1	2
COM-10	1	2
MONARCH	1	2
DL	1	2
C5	1	2
C4	1	2
HAGAKI	1	2
OUFUKU-HAGAKI	1	2
CUSTOM (LENGTH ≤ 210mm)	1	2
CUSTOM (210 < LENGTH < 900mm)	2	4
CUSTOM (900mm ≤ LENGTH)	4	8
ENVELOPE1 (Choukei 3)	1	2
ENVELOPE2 (Choukei 4)	1	2
ENVELOPE3 (Youkei 4)	1	2
ENVELOPE4 (Envelope A4)	1	2
ENVELOPE5 (Kakugata 2)	2	4
ENVELOPE6 (Kakugata 3)	1	2
ENVELOPE7 (Kakugata 8)	1	2
ENVELOPE8 (Youkei 0)	1	2
INDEXCARD	1	2
BUSINESSCARD1	1	2
BUSINESSCARD2	1	2

3. INSTALLATION

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3.1 Cautions, and do's and don'ts

⚠Warning

- Do not install the printer in any high-temperature location or a near heat source.
- Do not install the printer in a location where chemical reaction may occur (laboratory and the like).
- Do not install the printer in the proximity of inflammable solvents, such as alcohol and paint thinner.
- Do not install the printer within reach of children.
- Do not install the printer on an unstable surface (e.g., on a rickety bench or on a slanting place).
- Do not install the printer in a location with moisture or heavy dust, or in direct sun.
- Do not install the printer in an environment with sea wind or corrosive gas.
- Do not install the printer in a location with heavy vibration.
- In the event that the printer is inadvertently dropped or its cover is damaged, remove the power plug from the power outlet and contact the customer information center.
  Such mishap could lead to an electric shock, fire or injury.
- Do not connect any power cord, printer cable or grounding wire in any other manner than the way specified in the manual. Failure to observe the above could result in fire.
- Do not stick in an object into the vent hole.
  Such action could lead to an electric shock, fire or injury.
- Do not place a glass filled with water or the like on the printer.
  Such action could lead to an electric shock or fire.
- When the printer cover is opened, be careful not to touch the fuser unit.
  It may cause burns.
- Do not throw the toner cartridges or the image drum cartridges into fire.
  Dust explosion could cause burns.
- Do not use a highly combustible spray near the printer.
  It may case a fire because the printer contains parts that get extremely hot.
- In the event that the cover becomes unusually hot, emits smoke, bad smell, or abnormal noise, remove the power plug from the power outlet and contact the customer information center.
  It may lead a fire.

⚠Warning

- If water or any other liquid enters the inside of the printer, remove the power plug from the power outlet and contact Customer Center.
  Fire could break out.
- If someone drops foreign objects such as a clip in the printer, remove the power plug from the outlet and take out the foreign objects.
  It may cause an electric shock, fire, or injury.
- Do not operate or disassemble the printer in any other manner than the way specified in the manual.
  Failure to observe this warning could result in an electric shock, fire or injury.

⚠Caution

- Do not install the printer in a location where its vent hole is blocked.
- Do not install the printer directly on a shag carpet or rug.
- Do not install the printer in a sealed room or other location with poor ventilation or permeability.
- Make sure to ventilate sufficiently when continuously using the printer in a small room for a long time.
- Install the printer away from a strong magnetic field or noise source.
- Install the printer away from a monitor or TV.
- To move the printer, hold both sides of the printer.
- This printer, which weighs approximately 40 kg, should be lifted by two or more people.
- While the printer power is on or the printer is printing, do not come close to the paper exit. Such action could lead to injury.

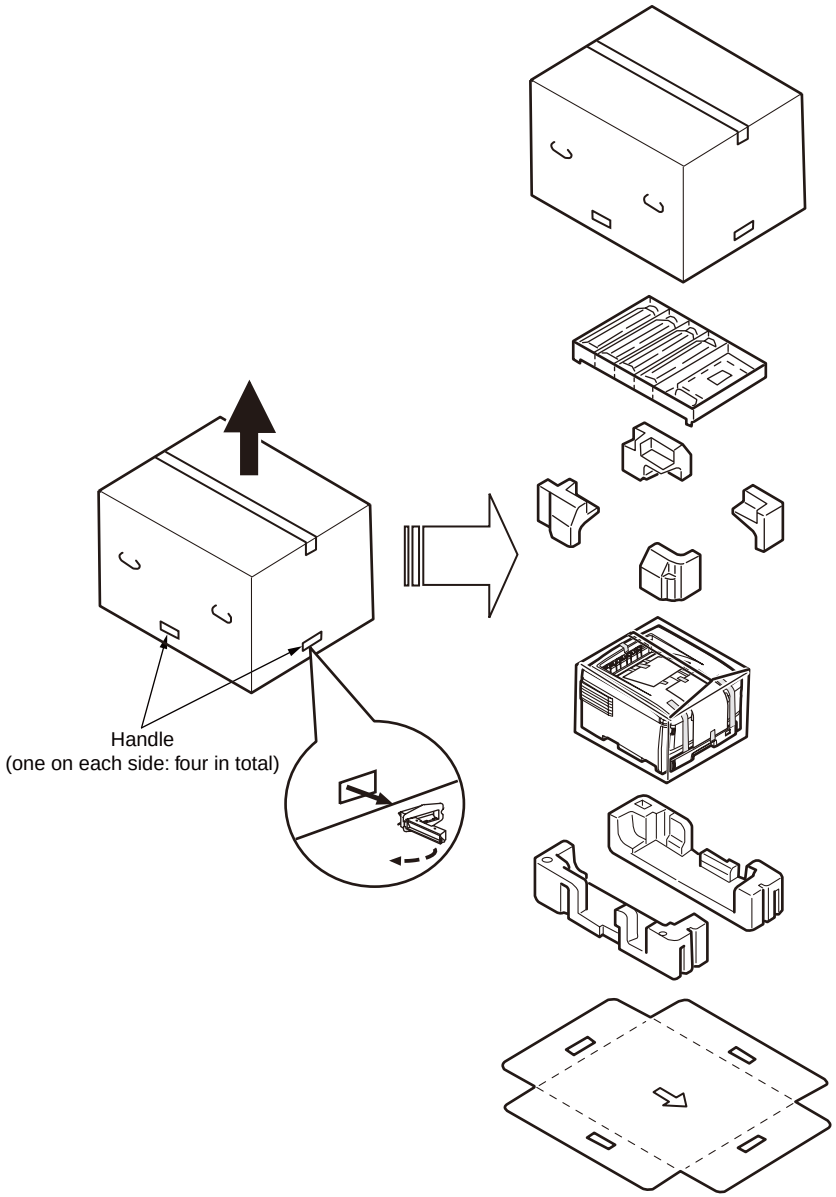
When the precautionary notes concerning the installation and operation are explained, the user should be referred to the precautionary notes given in the user's manual. Especially, give thorough explanation on the power cord and the grounding wire.

3.2 Unpacking procedure

⚠Warning	Personal injury may occur.	⚠

Since the printer weights approximately 40 kg, it should be lifted by two or more people.

- Remove the four handles from the sides of the box, as illustrated below, and lift the corrugated fiberboard box.



3.3 Printer installation instructions

- Install the printer in a location where the following temperature and humidity are met:

  Ambient temperature: 10 - 32°C

  Ambient humidity: 20 - 80 % RH (relative humidity)

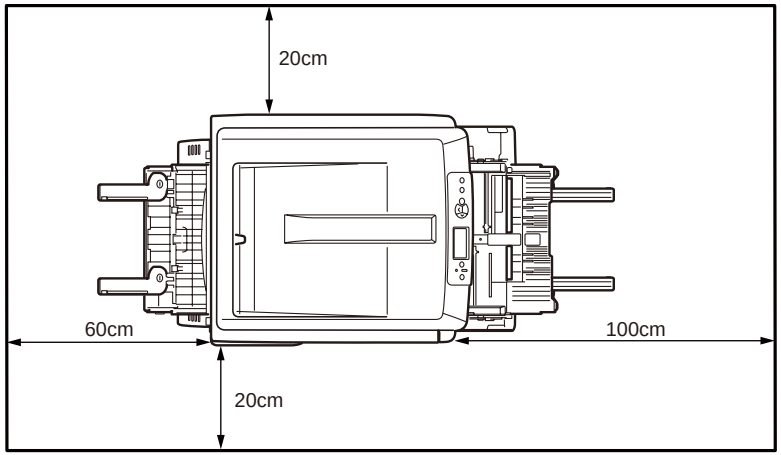
  Maximum wet-bulb temperature: 25°C

- Exercise caution to avoid dew condensation.
- If the printer is installed in a location with ambient relative humidity below 30%, use a humidifier or antistatic mat.

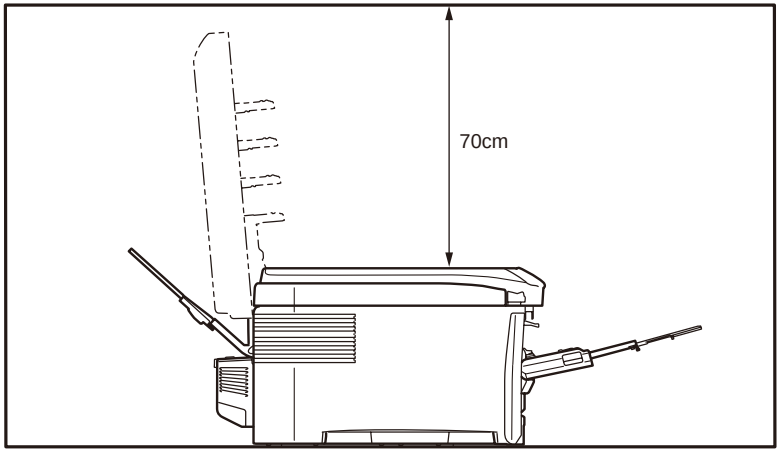
Installation space

- Place the printer on a flat desk large enough to accommodate its footings.
- Provide enough spaces around the printer.

Plan view



Side view



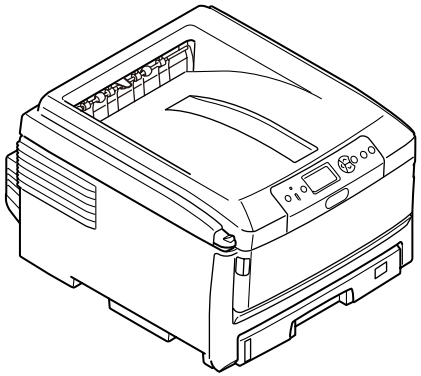
3.4 List of components and accessories

- Check to make sure that the components are free from damage, dirt or other irregularities in their appearance.
- Ensure that none of the accessories to the components is missing and that they are free from breakage or other flaw.
- If any irregularity is discovered, contact the user management section for instructions.

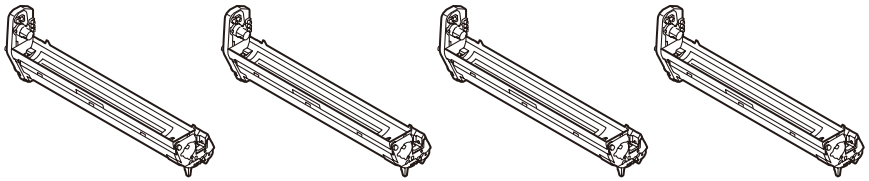
⚠Warning	Personal injury may occur.	⚠

Since the printer weights approximately 40 kg, it should be lifted by two or more people.

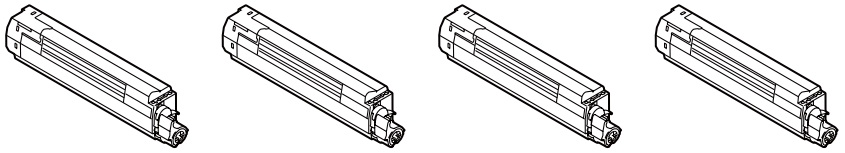
☐ Printer (main unit)



☐ Image drum cartridges (one each of cyan, magenta, yellow, and black) installed in the printer



☐ Toner cartridges (one each of cyan, magenta, yellow, and black) installed in the printer



Inform the user that the toner cartridges and image drum cartridges can be separated one from the other.

☐ Printer software CD-ROM

☐ Power cord

☐ User's manual (Setup)

☐ User's manual (CD-ROM)

☐ Quick Guide

☐ Bag for Quick Guide

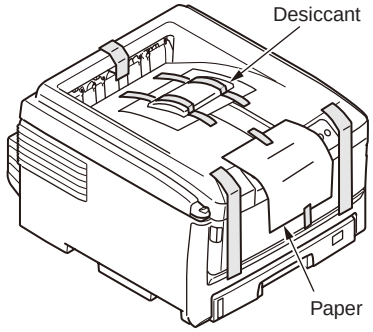
Note! No printer cable is supplied with the printer.

3.5 Assembly procedure

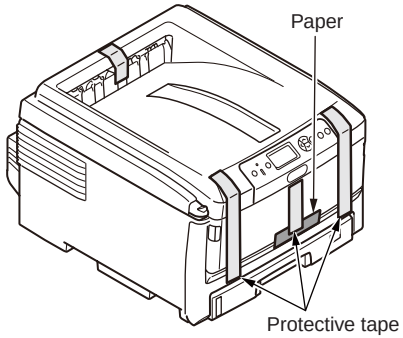
3.5.1 Assembly of the printer main unit

Removing the protective materials

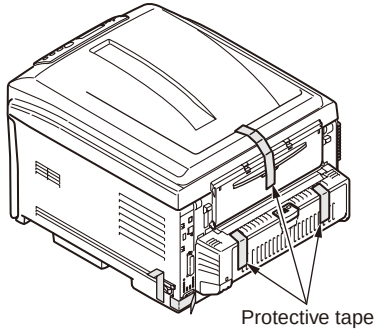
(1) Remove the desiccant and protective paper from the top of the printer.



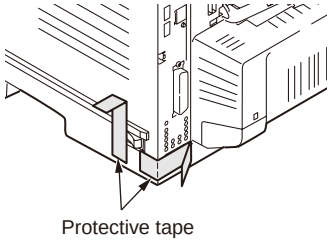
(2) Remove the protective tapes (three places) and protective paper from the front of the printer.



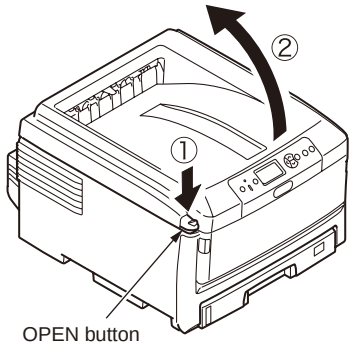
(3) Remove the protective tapes (three places) from the back of the printer and the power unit.



(4) Remove the protective tapes from the power unit.



(5) Press the OPEN button to open the top cover.

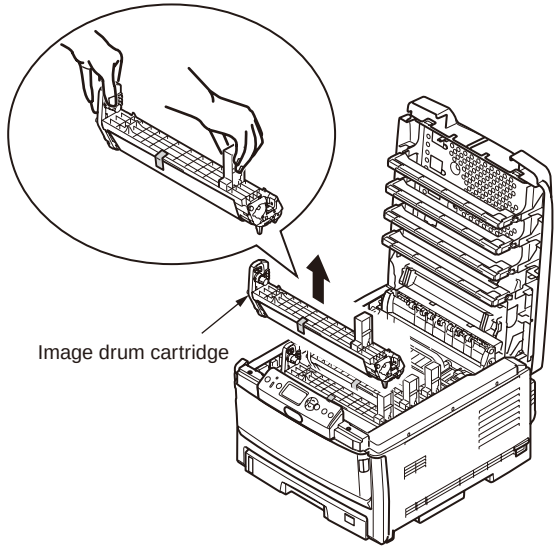


Installing the image drum cartridges

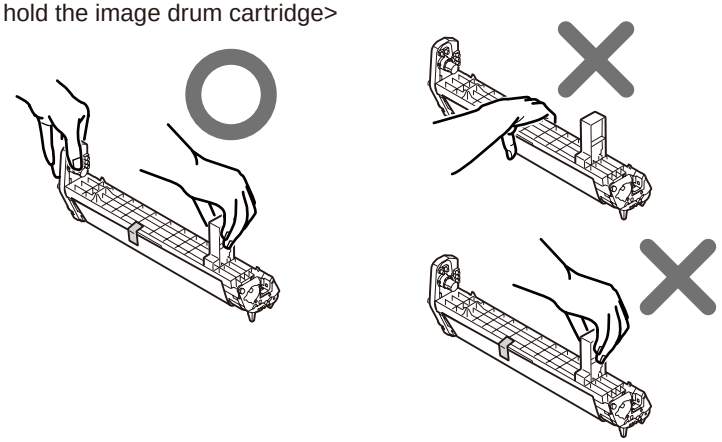
(1) Take out the image drum cartridge (four cartridges) gently.

Note! • The image drum (green cylinder part) is very sensitive to scratches, therefore, special care should be taken on handling.

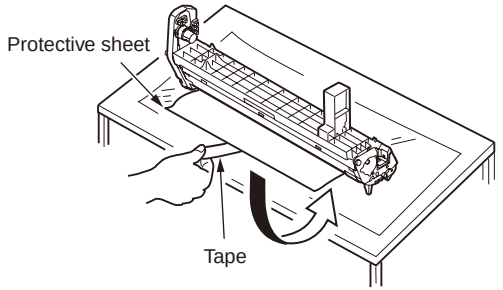
• Do not expose the image drum cartridges to direct sunlight or strong light (approx. 1500 lux or above). Even under room light, do not leave them exposed for five minutes or longer.

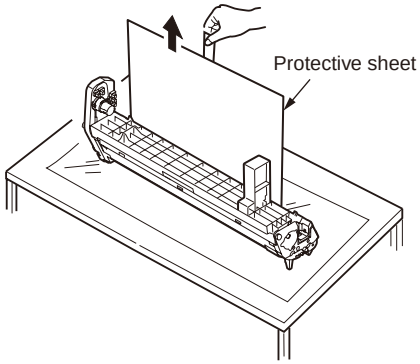


<How to hold the image drum cartridge>

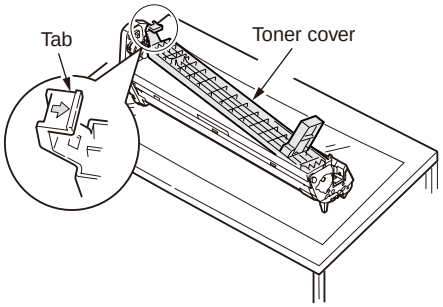


(2) Put the image drum cartridge on newspaper or something, remove the tape holding the protective sheet, and pull the sheet out in the direction of the arrow.





(3) Remove the toner cover.



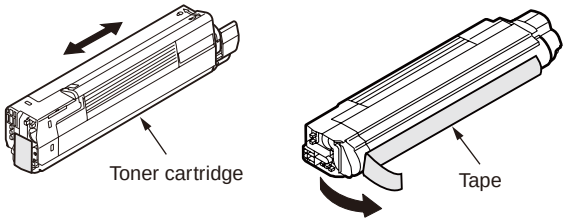
(4) Similarly, remove the protective sheets and toner covers fro the other three image drums.

(5) Install the toner cartridges to the image drum cartridges.

Note! The toner cartridges supplied with the product are capable of printing approximately 2,300 sheets (ISO/IEC 19798).

a) Take the toner cartridge out of its package and shake the toner cartridge several times vertically and horizontally.

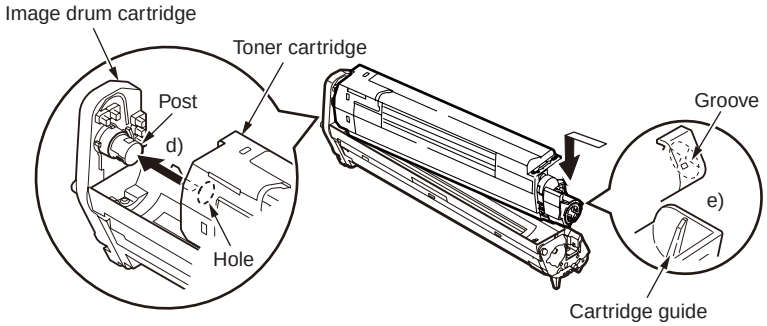
b) Hold the toner cartridge in a horizontal position and slowly remove the tape.



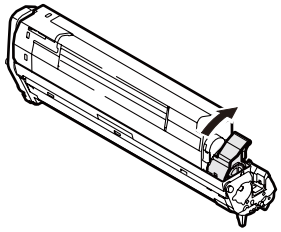
c) Make sure that the color of the toner cartridge's label matches the color of the image drum cartridge's label.

d) Engage the hole of the toner cartridge with the post of the image drum cartridge with the side with the tape removed facing down.

e) Push the toner cartridge in so that the right groove in the cartridge is engaged with the protrusion of the cartridge guide.

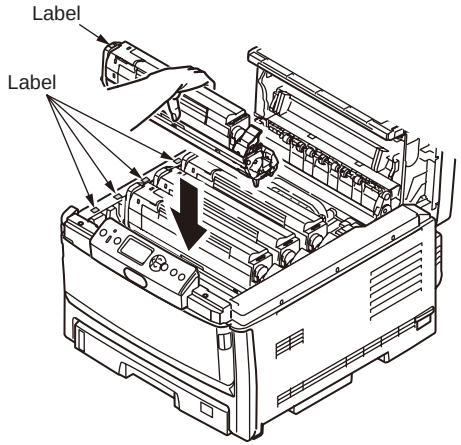


f) Turn the lever on the toner cartridge in the direction of the arrow until it stops.

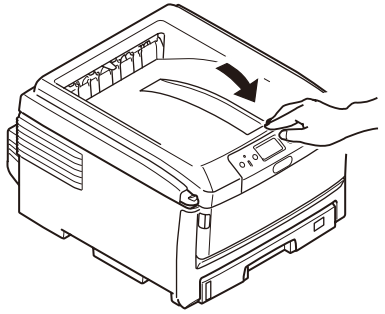


Note! • Do not force the toner cartridges into place. If the cartridges do not fit, check to see if the color of the lever on each of the toner cartridges corresponds to the color of the label on each of the image drum cartridges. If the colors of these labels do not correspond, the toner cartridges cannot be installed.
• The print quality may deteriorate if the toner cartridges are not installed properly.

(6) Install the image drum cartridges with the toner cartridges installed to the printer.



(7) Close the top cover.



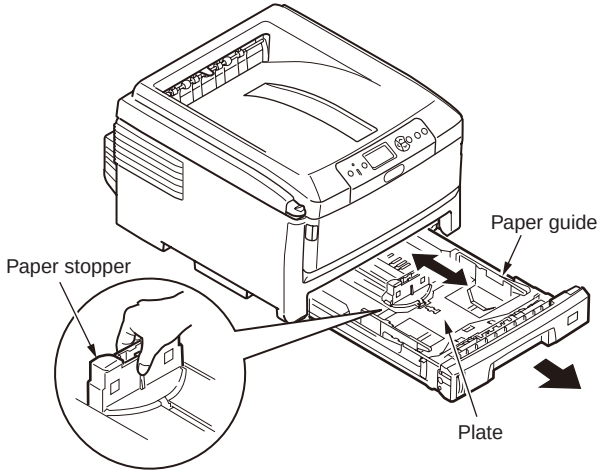
Note! If the message [REPLACE TONER] on the operator panel remains displayed even after a long period of waiting, check to see if the lever on the toner cartridge is moved fully in the direction of the arrow.

Loading paper in the paper cassette

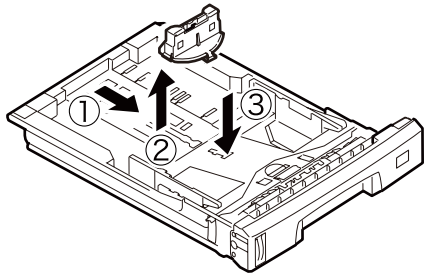
(1) Pull out the paper cassette.

Note! Do not remove the rubber from the plate.

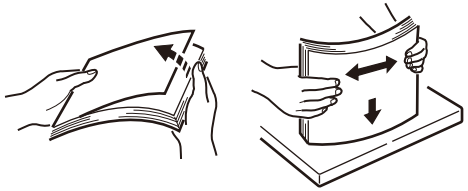
(2) Adjust the paper stopper and paper guide to the size of the paper being used.



Note! When setting A6 size paper, move the paper stopper toward you to remove it. Then attach it to the position shown.



(3) Fan the edges of paper stack and align the edges of the stack on a level surface.

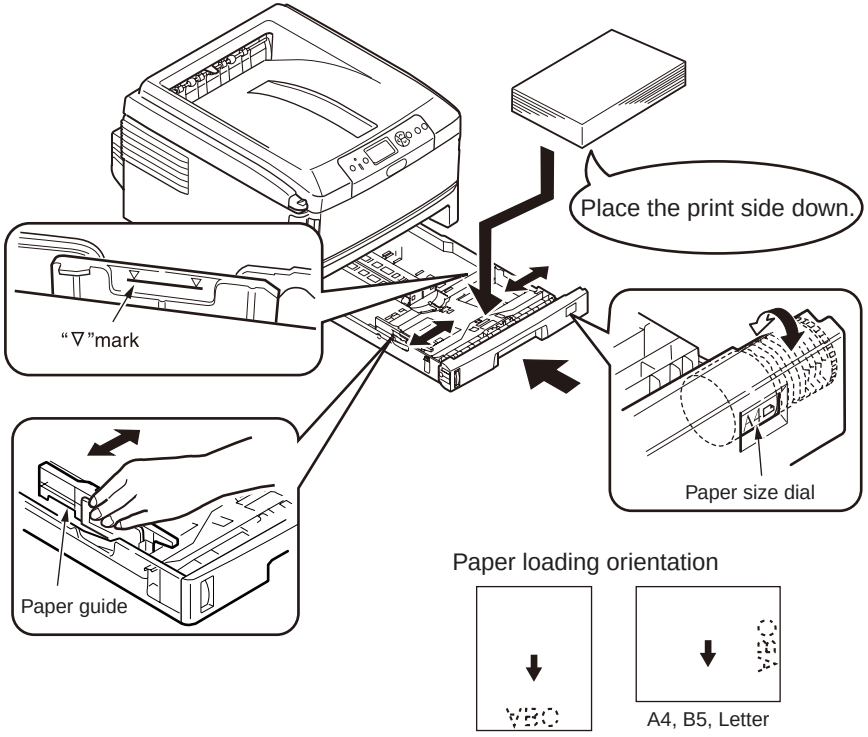


(4) Load the paper with the print side facing down.

Note! • Place the paper against the front side of the paper cassette.
• Do not allow the level of paper to pass the "▽" mark of the paper guide (300 sheets of 70 kg paper).

(5) Hold the paper with the paper guide.

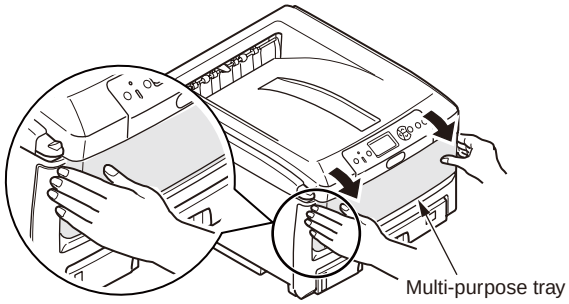
(6) Turn the paper size dial to the size of the paper you load.



(7) Return the paper cassette to the printer.

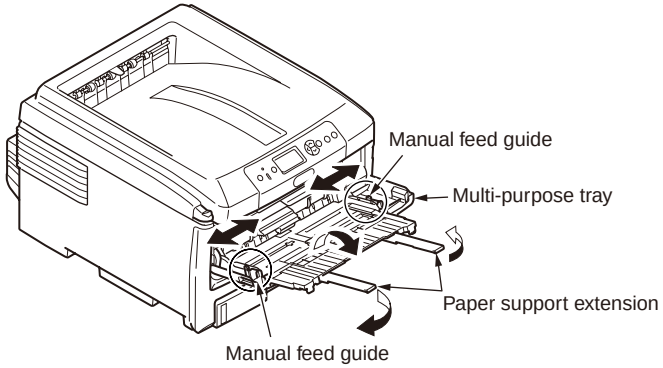
Loading paper in the multi-purpose tray

(1) Open the multi-purpose tray and also the paper supporter.

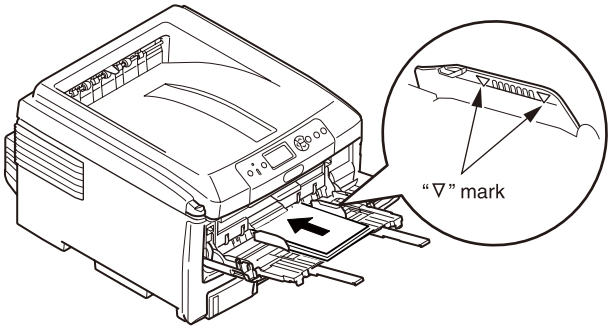


(2) Move the manual feed guide to the paper size.

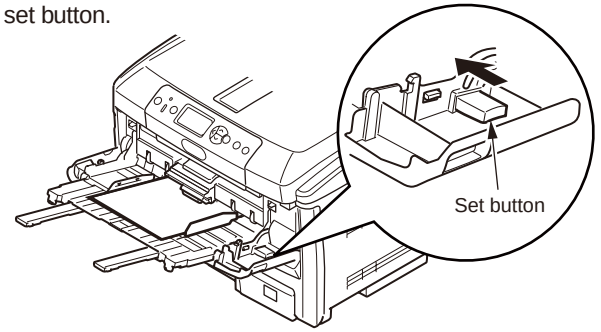
(3) Align the edges of the paper.



(4) Insert the paper, print-face up, along the manual feed guide straight as far as it will go.



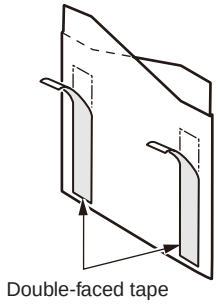
(5) Press the set button.



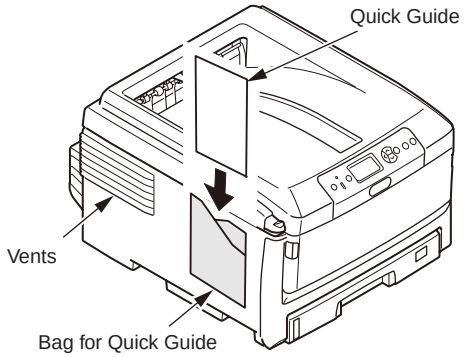
Storing Quick Guide

Stick a bag for Quick Guide on the printer to store Quick Guide.

(1) Remove double-faced tapes (two places) from the back of the bag.



(2) Stick the bag for Quick Guide on the printer.



Note! Stick the bag to a place not to block the vents on the printer.

3.5.2 Connection of the power cable

Power supply conditions

- Observe the following conditions:
  AC: 100V ± 10%
  Power frequency: 50 Hz or 60 Hz ± 2 Hz
- If the available power is unstable, use a voltage regulator of the like.
- The maximum power consumption of this printer is 1,350W. Ensure that the power source offers an ample margin in the power capacity.
- Proper operation with a UPS (uninterruptible power supply) or inverter is not guaranteed. A warning to not use either UPS or inverter should be given to the user.

⚠Warning | It may expose you to electric shocks or cause a fire. |

- Installation and removal of the power cord and the grounding wire must be performed after turning the switch to OFF.
- The grounding wire should be connected to the specified grounding terminal. Never connect the grounding wire to a water pipe, gas pipe, or a telephone line ground, or to a lightning rod or the like.
- Hold the power plug of the power cord to plug in or unplug the cord.
- Insert the power plug securely into a receptacle as far as it will go.
- Do not insert or remove the power plug with wet hands.
- Lay the power cord in a location where it is not likely stepped on, and avoid placing anything on the power cord.
- Do not bundle or tie the power cord.
- Do not use a damaged power cord.
- Avoid many loads on one electrical outlet.
- Do not connect the printer to the same power outlet shared by other electric appliances. Especially, if the printer is connected to the same power outlet in conjunction with an air-conditioner, copy machine or shredder, electric noise may cause false operation of the printer. If it is inevitable to connect them to the same power outlet, use a commercial noise filter or noise-cut transformer.
- Operate the printer with the supplied power cord only. Do not use an extension cord. If it is inevitable to use an extension cord, use one with rating of 15A or more.
- Use of an extension cord may hinder the printer from operating normally because of a voltage drop.
- Be sure to use the power cord supplied with the printer. Do not use a power cord provided for any other products.
- The power cord supplied with the printer is provided only for the printer. Do not use the power cord for other products.
- Do not turn off the power or remove the power plug while the printer is printing.
- If the printer is going to be placed out of use for an extended period of time due to a long spell of holidays or a trip out of town, unplug the power cord.

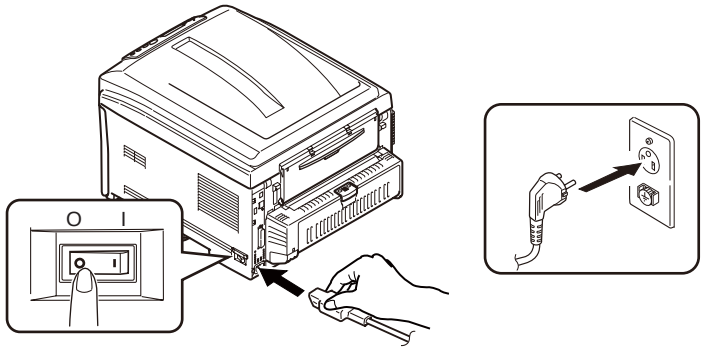
About the connections of the power cord and grounding wire, the user should be given thorough explanation on the basis of the user's manual.

Connecting the power cord

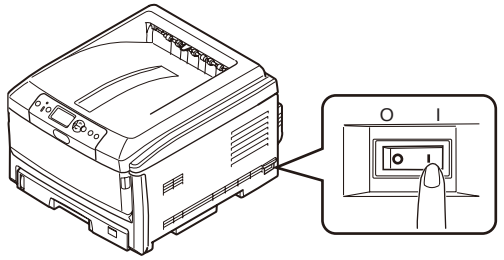
Note! Ensure that the power switch is in OFF (O).

(1) Insert the power cord into the printer.

(2) Insert the power plug into the power outlet.



Pressing on (I) of the power switch

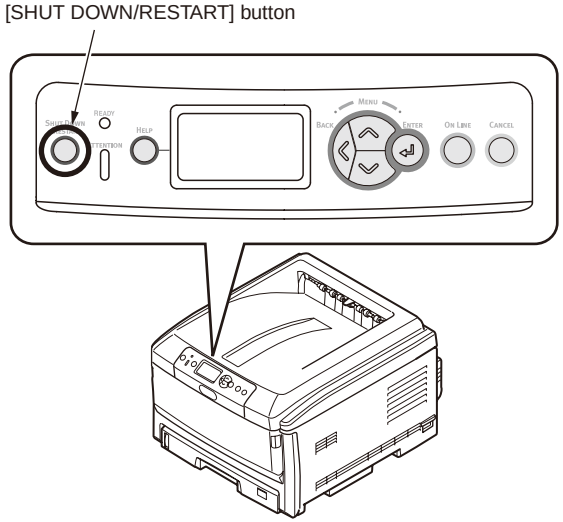


[Ready to Print] will appear when the printer has started up completely.

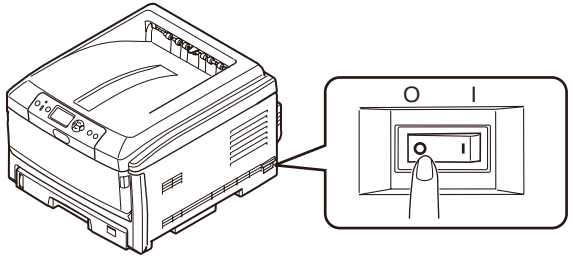
Turning off the power

Note! Turning off the power without taking proper shutdown steps may damage and disable the printer. Be sure to follow the steps below.

(1) Press the ◯ [SHUT DOWN/RESTART] button for at least for four seconds. [Shutting down] will be displayed, and the shutdown process will start.

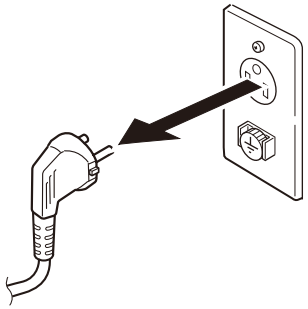


(2) After [Shutdown Completed/Turn off the power or press the restart button to restart] appears, press the power switch OFF (O).



No use for a long time

Unplug the power cord when the printer will not be used for a long time, such as during long vacations or trips.

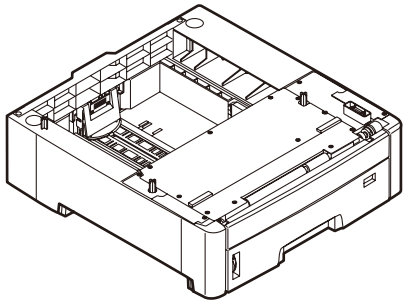


Note!
- This printer does not cause any malfunction even if the power plug is disconnected for a long time (four weeks or longer).
- Unwarranted deterioration of consumables of the printer, including toner and image drums, should be informed to users.

3.5.3 Installation and recognition confirmation of options

(1) Installation of an additional tray unit

An additional tray unit is intended for increasing the amount of paper that can be loaded in the printer, and two additional tray units can be installed to the printer. An additional tray holds 530 sheets of 70 kg paper, allowing the printer to print up to 1,460 sheets continuously when used with a standard paper cassette and a multi-purpose tray together.



1. Turn off the printer and disconnect the power cord.

Turn off the printer by following the steps described under “Turning off the power” in section 3.5.2.

Note! • Turning off the power without taking proper shutdown steps may cause a failure of the printer, so be sure to hold down the [SHUT DOWN/RESTART] button for more than four seconds to run shutdown, and after the shutdown, turn off the power.
• Installation of an additional tray unit with the power on may cause a failure of the printer.

2. Place the printer on an additional tray unit.

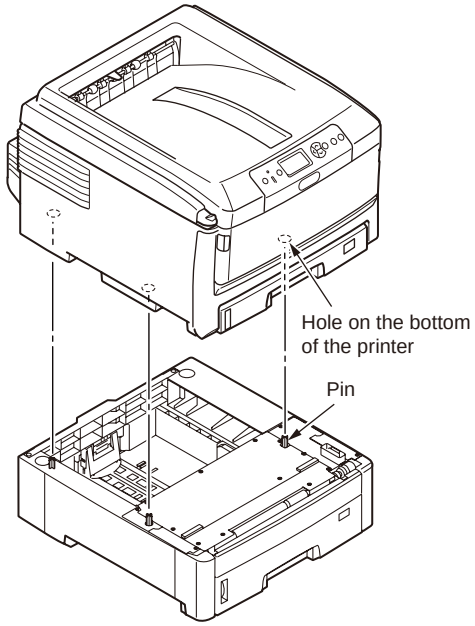
Note! The printer weights approximately 40 kg. It should be lifted by two or more people.

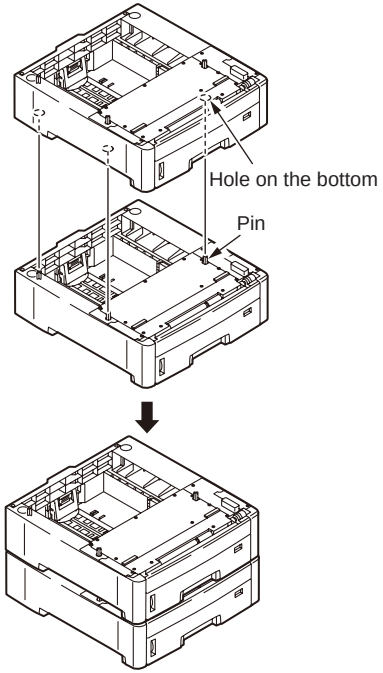
❶ Align the holes on the bottom of the printer to the pins of the additional tray unit.

❷ Place the printer gently on the additional tray unit.

To detach the additional tray unit, follow the same procedure in reverse order of installation.

Note! To install two additional tray units to the printer, make them stacked before installation to the printer.

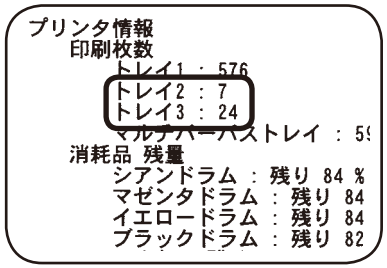




3. Connect the power cord and the printer cable to the printer and turn the power ON.

Note! If [SERVICE CALL 182: ERROR] or [SERVICE CALL 183: ERROR] appears, remove the installed tray unit and reinstall it to the printer.

4. Print the printer configuration and check the printout for successful installation of every added tray.



❶ Print the printer configuration by following the steps described in section 3.6.

❷ Check to make sure that every installed tray is shown in [Print Count] of [Printer Information].

Note! If every added tray is not shown there, remove every installed tray unit and reinstall them to the printer.

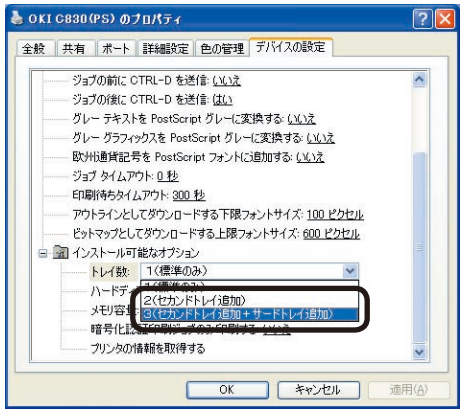
5. Set the number of trays in the printer driver.

Setting should be made in the printer driver to have the printer recognize every added tray.

If the printer driver hasn't been set up, set up the printer driver by referring to the relevant user's manual (Setup) and then perform the following setup.

Note! Administrator privileges on the computer are required.

Settings for Windows PS printer driver



(Screen of Windows XP)

❶ For Windows Vista/Server 2008, select [Start] - [Control Panel] - [Printers].

For Windows XP, select [Start] - [Control Panel] - [Printers and Other Hardware] - [Printers and Faxes].

For Windows Server 2003, select [Start] - [Printers and Faxes].

For Windows 2000, select [Start] - [Settings] - [Printers].

❷ Right-click the [OKI C830/C821 (PS)] icon and select [Properties].

❸ Select [Obtain Printer Information] in [Installable Options] on the [Device Settings] tab and click [Setup] or [Obtain Printer Information]. For USB connection, manually set an appropriate value in [Number of Trays].

❹ Click [OK].

Settings for Windows PCL/PCL XPS printer driver

(Screen of Windows XP)

❶ For Windows Vista/ Server 2008, select [Start] - [Control Panel] - [Printers].

For Windows XP, select [Start] - [Control Panel] - [Printers and Other Hardware] - [Printers and Faxes].

For Windows Server 2003, select [Start] - [Printers and Faxes].

For Windows 2000, select [Start] - [Settings] - [Printers].

❷ Right-click the [OKI C830/C821 (**)] (** is PCL or PCL XPS, which is a type of the printer driver) icon and select [Properties].

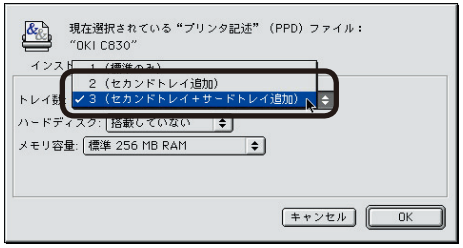
❸ Select [Obtain Printer Information] in the [Device Options] tab. For USB connection, manually enter the current total number of trays in the [Available Devices].

❹ Click [OK].

Settings for Macintosh

In Macintosh, when options are added before installing the printer driver, device information can be automatically obtained. When options are added after installing the printer driver, make the settings of options according to the following steps.

Network connection



❶ Select the printer in [Chooser] and click [Reconfigure].

❷ Click [Configuration].

❸ Select an appropriate value in [Number of Trays] and click [OK].

❹ Close [Chooser].

USB connection

❶ Drag the printer icon to the trash on the desktop and empty the trash.

❷ Using the Desktop Printer Utility, create the desktop printer again. When the desktop printer is created again, the setting is also updated.

Memo For how to create the desktop printer, see “Creating the Desktop Printer” of “Setup for Macintosh with USB Connection” in the user’s manual (Setup).

Settings for Mac OS X

In Mac OS X, when options are added before installing the printer driver, device information can be automatically obtained, but when connected via IP Print or Bonjour (Rendezvous), device information cannot be automatically obtained.

Also, when connected via AppleTalk, device information cannot be automatically obtained if options are added after installing the printer driver.

In the above cases, you need to set up options according to the following steps.

For Mac OS X 10.5 users

❶ Select [Apple Menu] - [System Configuration].

❷ Click [Printers and Faxes]. Select a printer name and click [Options and Supplies] to select the [Driver] tab.

❸ Select an appropriate value in [Number of Trays] and click [OK].

For users other than Mac OS X 10.5 users

❶ Double-click [Application] - [Utilities] - [Printer Setup Utility] in the hard disk.

❷ Select [OKI C830/C821] and click [Show Info] and open [Printer Info].

❸ Select [Installable Options].

❹ Select an appropriate value in [Number of Trays] and click [Apply Changes].

❺ Close [Printer Info].

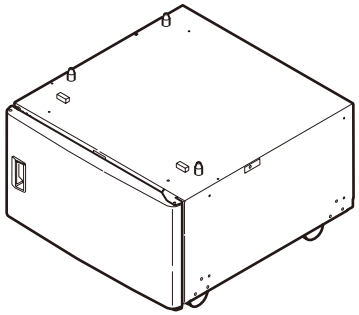
(2) Installation of a roller cabinet

When placing the printer on the floor, it is recommended to use a roller cabinet. The printer main unit, or printer with additional trays can be set on the cabinet.

This cabinet has rollers that allow users to move the printer easily.

You can store paper or consumable in this cabinet.

Cabinet

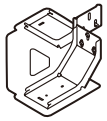


Accessories

Support Plate
(1 piece)

Screw
(17 pieces)

Anti-tip bracket
cover (6 pieces)



Anti-tip bracket
for the rear side
(2 pieces)

Anti-tip bracket
for the front side
(2 pieces)

1. Turn off the printer to remove the power cord and the printer cable.

Note! Installing with the printer ON may damage the printer.

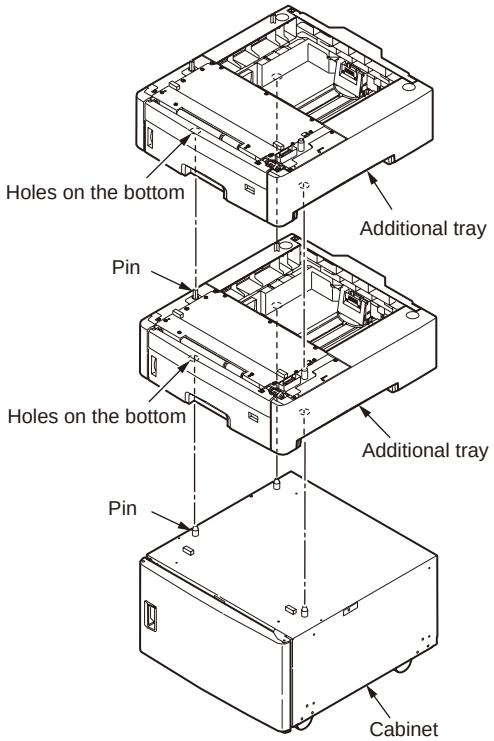
Memo Refer to “Turning off the power” for the turn-off procedure.

2. Put the additional trays on the cabinet.

Note! Do not lift the printer and additional trays together.

❶ Align the holes on the bottom of the additional tray to the pins of the cabinet.

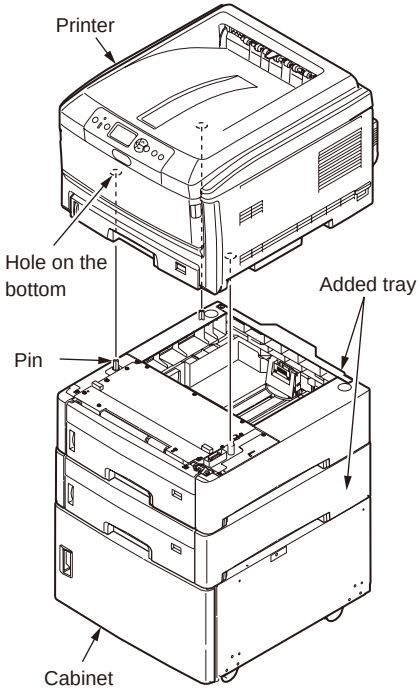
❷ Place the additional trays gently on the cabinet.



3. Place the printer on the stack of additional trays.

⚠Caution	Personal injury may occur.	⚠

Since the printer weights approximately 40 kg, it should be lifted by two or more people.



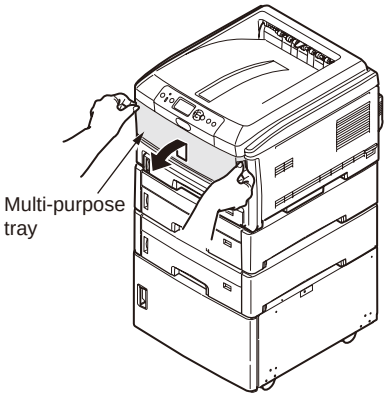
❶ Align the holes on the bottom of the printer to the pins of the additional tray.

❷ Place the printer gently on the stack of additional trays.

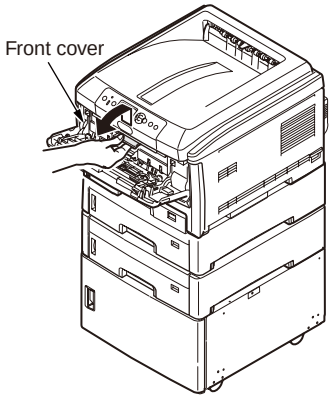
Proceed to step 5 when one additional tray is used.

4. Install the support plate.

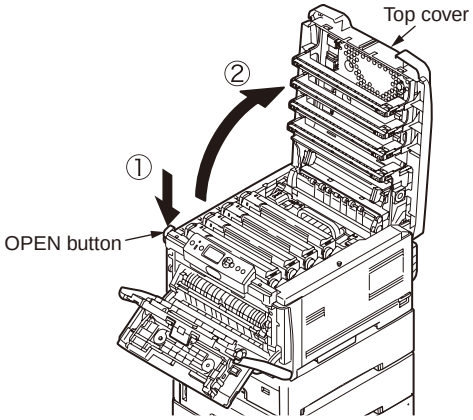
Memo The plate can be installed only when two additional trays are used. It cannot be installed for the printer main unit only when one additional tray is used.



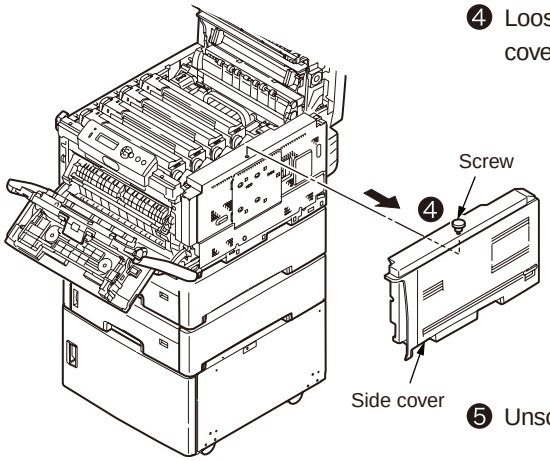
❶ Open the multi-purpose tray.



❷ Push up the center handle (blue) to open the front cover.



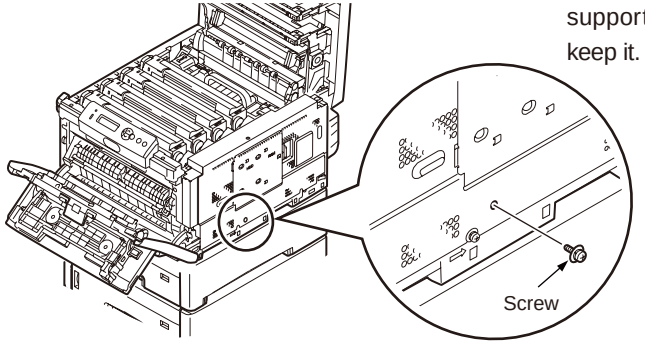
❸ Push the OPEN button to open the top cover.

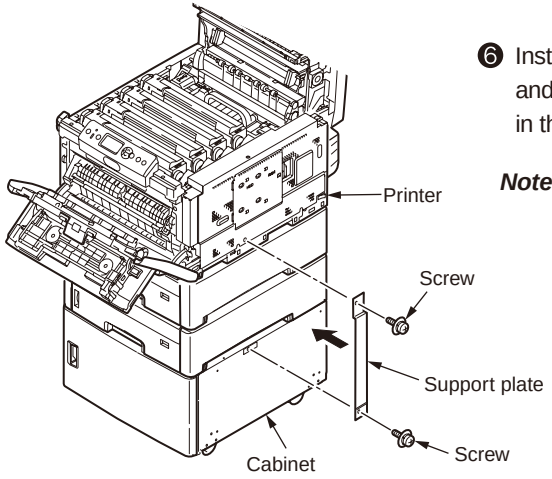


❹ Loosen a screw to detach the side cover of the printer.

❺ Unscrew the screw.

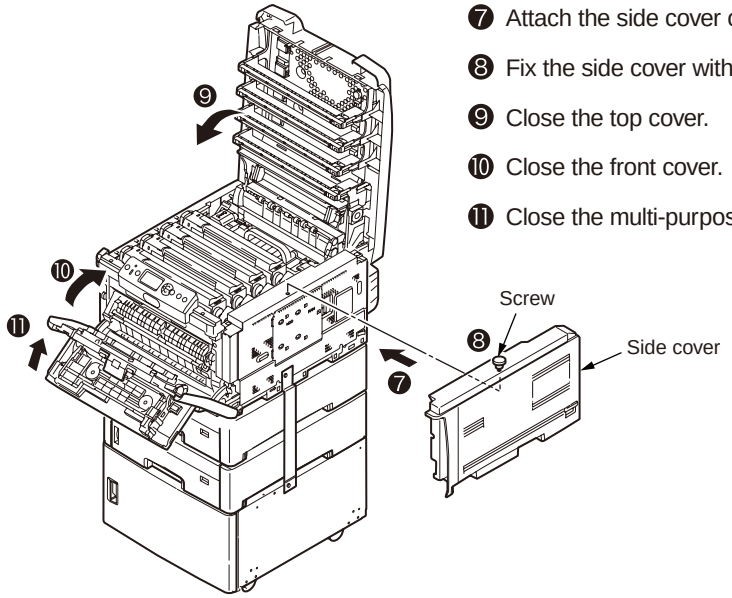
Note! The screw is used to install the support plate, so make sure to keep it.





❻ Install the support plate to the printer and cabinet with the screw unscrewed in the step ❺.

Note! Watch the shape of the support plate to install it.



❼ Attach the side cover of the printer.

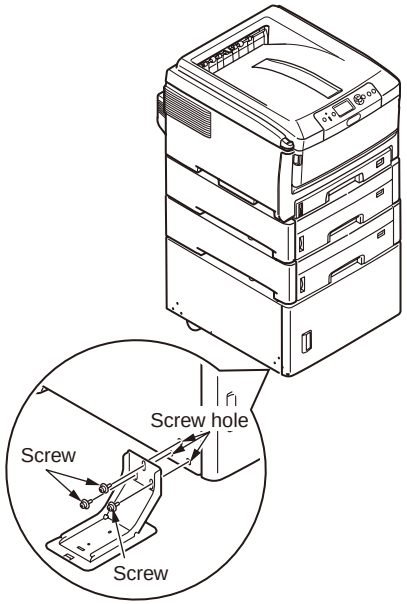
❽ Fix the side cover with the screw.

❾ Close the top cover.

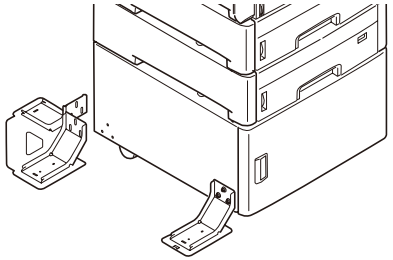
❿ Close the front cover.

⓫ Close the multi-purpose tray.

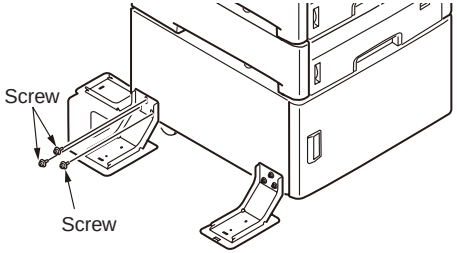
5. Attach anti-tip brackets.



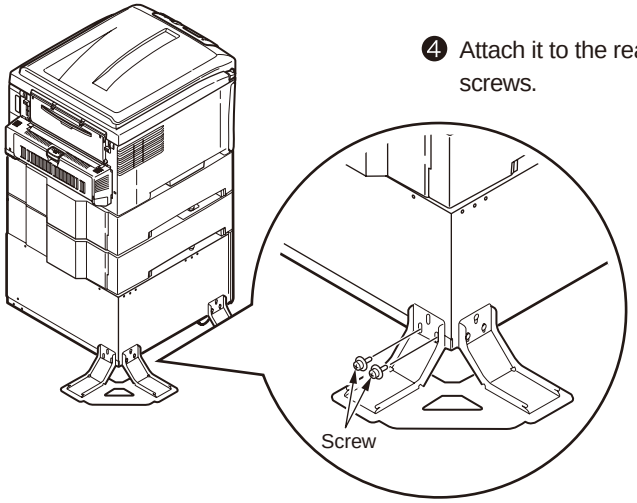
❶ Attach an anti-tip bracket (for the front side) to the left side of the cabinet with three screws.



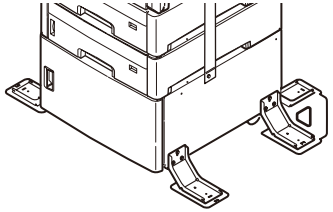
❷ Fit an anti-tip bracket (for the rear side) to the left back corner of the cabinet.



❸ Attach it to the left side with three screws.



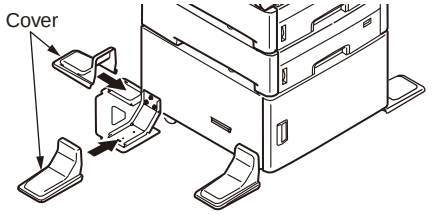
❹ Attach it to the rear side with two screws.

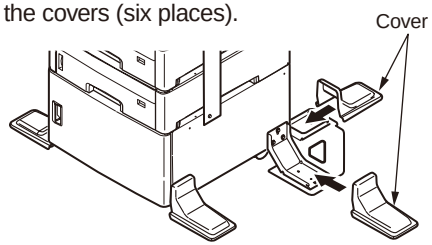


❺ Attach the rest of anti-tip brackets (for each of the front side and the rear side) to the right side with the same steps ❶ through ❹.

6. Attach the anti-tip bracket covers.

Attach covers to the anti-tip brackets by sliding the covers (six places).





7. Attach the power cord and cables to the printer and turn on the power.

8. Check that the additional trays are correctly attached, and set up the additional trays in the computer.

Memo For the procedure to check for installation of additional trays, see “(1) Installation of an additional tray unit”.

How to remove the anti-tip bracket covers

Insert a flat-blade screwdriver into the opening of an anti-tip bracket cover, move the cover upward by turning the screwdriver to disengage the cover, and pull the cover to remove (Figure 1). Do not remove the cover by force; otherwise, the cover may be broken. If the cover is not removed easily, pull the over with hands hardly to remove (Figure 2).

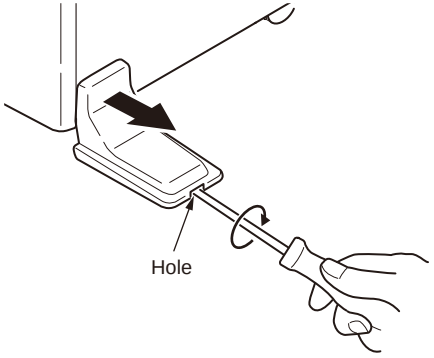


Figure 1

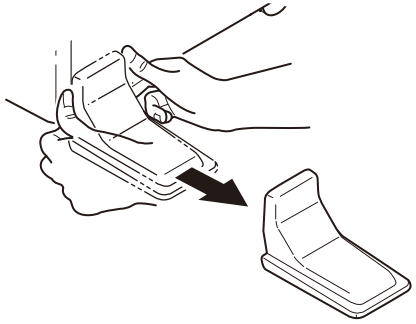
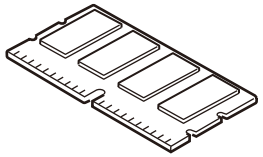


Figure 2

	Personal injury may occur.

(3) Installation of an additional memory

A memory expansion board increases the memory capacity of the printer. A memory expansion board should be added to the printer when an error message [Memory Overflow] appears due to insufficient memory for complex data on the printer, or the error message [Collating Error] appears in making collated sets of copies.



Additional memory

Model name	Memory capacity (total)
None (standard)	256 MB (256 MB)
MEM256E	+256 MB (512 MB)
MEM512C	+512 MB (768 MB)

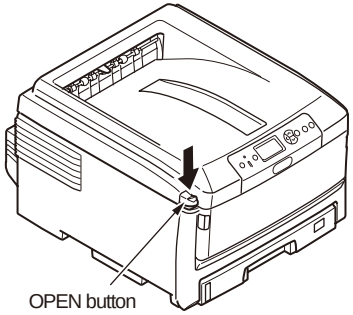
Note! • Proper operation by use of an unspecified product cannot be guaranteed. Be sure to use Oki product.
- Additional memory of 256 MB or more is recommended for long-sheet printing.
- One memory slot is provided.

1. Turn off the printer and disconnect the power cord.

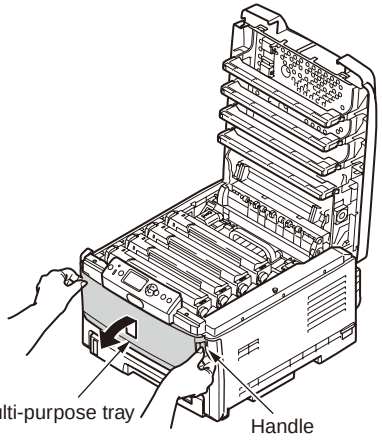
Turn off the printer by following the steps described under “Turning off the power” in section 3.5.2.

Note! • The printer or additional memory may fail if the power is switched off without taking shutdown steps. Be sure to follow the shutdown procedure.
- Installation of an additional memory with power on may cause a failure of the printer.

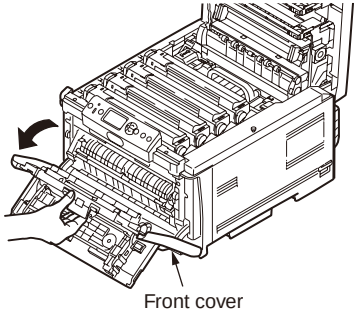
2. Open the top cover and the front cover.



❶ Push the OPEN button to open the top cover.

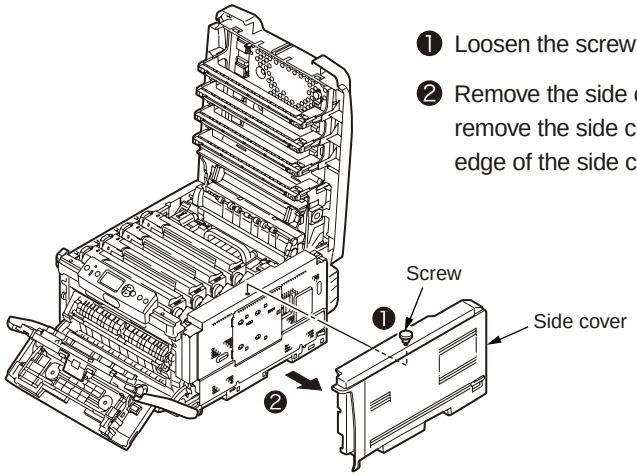


❷ Open the multi-purpose tray.



❸ Push up the (blue) lever at the center of the front cover and pull the cover to open.

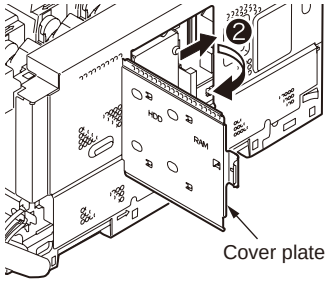
3. Remove the side cover.



❶ Loosen the screw (one place).

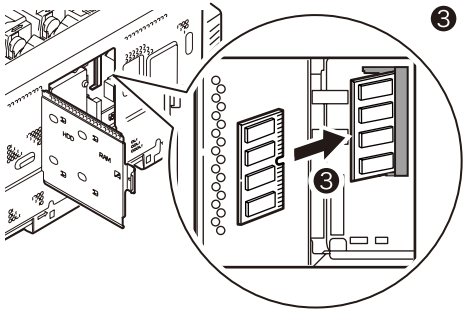
❷ Remove the side cover. Pull it outward to remove the side cover by holding the upper edge of the side cover to lift.

4. Install the memory.



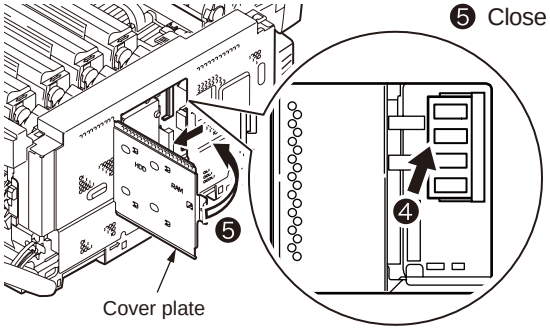
❶ Before taking the additional memory out of the package, discharge any static electricity from the package by bringing the package in contact with a metal section.

❷ Slide the metal cover plate in the direction of the arrow to open it.



❸ Insert the memory into the slot at an angle.

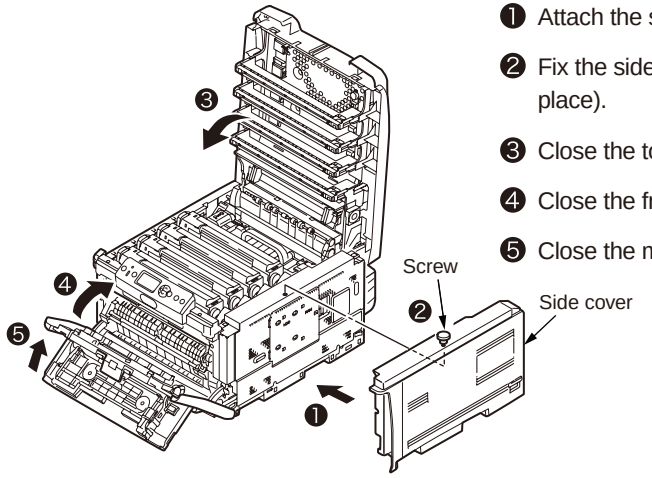
❹ Push the memory against the printer to fit it firmly.



❺ Close the metal cover plate.

Note! • Do not touch electrical parts or connector pins.
• Install the memory by observing the correct orientation of it. The memory has a notch in its edge so as to fit with the memory slot connector.

5. Attach the side cover.



❶ Attach the side cover.

❷ Fix the side cover with the screw (one place).

❸ Close the top cover.

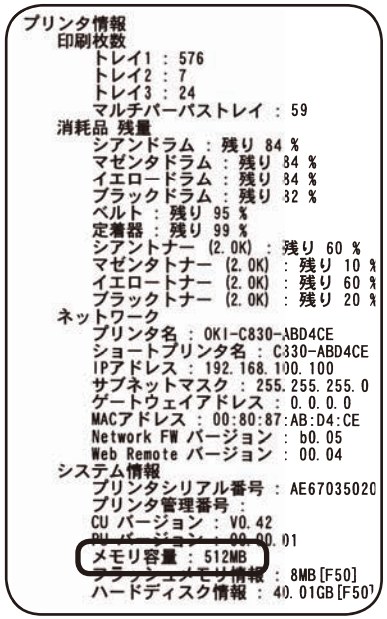
❹ Close the front cover.

❺ Close the multi-purpose tray.

6. Connect the power cord and the printer cable to the printer and turn on the printer.

Note! If the operator panel displays [SERVICE CALL 031: ERROR], remove the memory and reinstall it.

7. Print the configuration report and check the printout for successful installation of the additional memory.

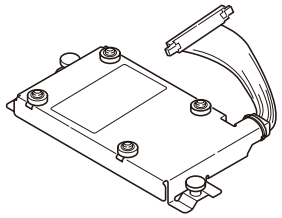


❶ Print the configuration report by following the steps instructed in section 3.6.

❷ Check the total memory size shown at “Total Memory Size” in [System Information] of [Printer Information].

Note! Reinstall the additional memory if the size at “Total Memory Size” is not correct.

(4) Installation of an internal hard disk



Note! Fonts cannot be downloaded to any optional internal hard disk for the printer.

Two types of internal hard disks are provided as options for the C830/C821 printers as shown below.

- Standard internal hard disk
  It is an internal hard disk to be added to C830/C821 printers. It is used for authenticated printing, print job saving and buffer printing, or used when [Collating Error] appears in making collated sets of copies.
- Data protection kit A3 (model name: DPK-A3)
  See section 7.8.

One of the above hard disks can be installed to the printer.

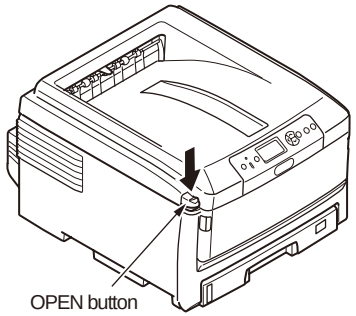
Memo The above two types of internal hard disks can be installed in the same manner.

1. Turn off the printer and disconnect the power cord.

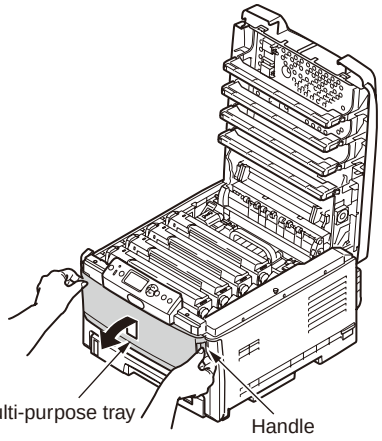
Turn off the printer by following the steps described under “Turning off the power” in section 3.5.2.

Note! • Turning off the power without taking proper shutdown steps may cause a failure of the printer, so be sure to follow the shutdown procedure.
• Installation of an internal hard disk with the power on may cause a failure of the printer.

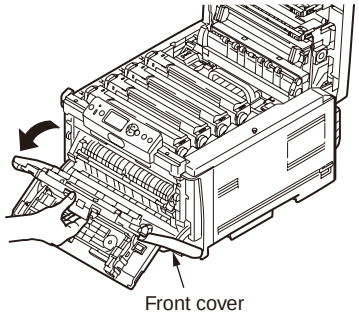
2. Open the top cover and the front cover.



❶ Push the OPEN button to open the top cover.

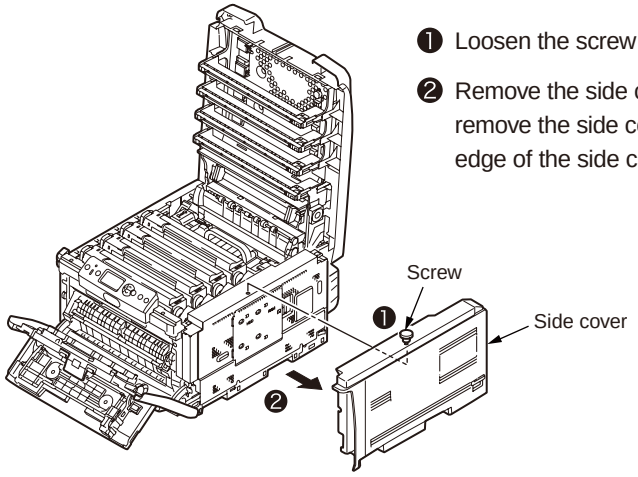


❷ Open the multi-purpose tray.



❸ Push up the (blue) lever at the center of the front cover and pull the cover to open.

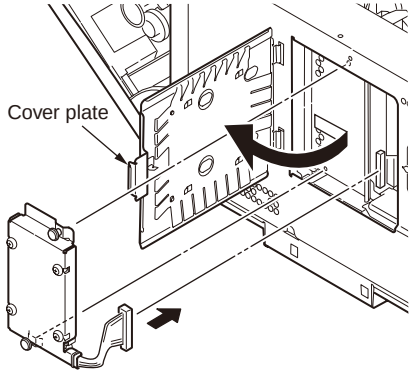
3. Remove the side cover.



❶ Loosen the screw (one place).

❷ Remove the side cover. Pull it outward to remove the side cover by holding the upper edge of the side cover to lift.

4. Install an internal hard disk.



❶ Open the metal cover plate.

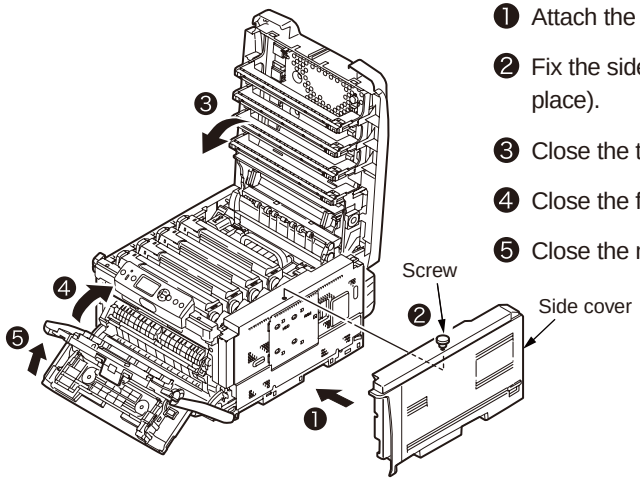
❷ Fit the protrusions of the internal hard disk into the holes on the printer.

❸ Secure the internal hard disk with two screws.

❹ Push the connector until it clicks.

❺ Close the metal cover plate.

5. Attach the side cover.



❶ Attach the side cover.

❷ Fix the side cover with the screw (one place).

❸ Close the top cover.

❹ Close the front cover.

❺ Close the multi-purpose tray.

6. Connect the power cord and the printer cable to the printer and turn on the printer.

7. Print the configuration report and check the printout for successful installation of the internal hard disk.

❶ Print the configuration report by following the steps instructed in section 3.6.

❷ Check the internal hard disk space shown at “Hard Disk Information” in [System Information] of [Printer Information].

Memo The internal hard disk space may be different from the example on the left.

Note! Remove the internal hard disk and reinstall it when [Not Installed] is shown at [Hard Disk Information].

Note! If an internal hard disk for IC card authentication has been installed, be sure to read the manual supplied with the hard disk.

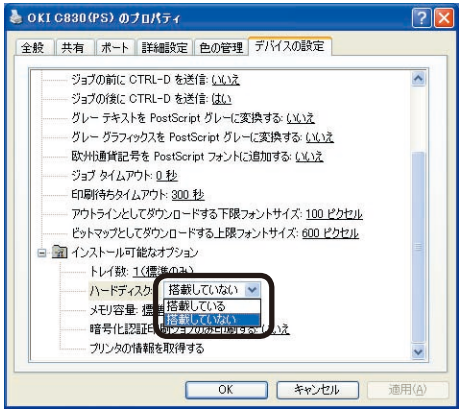
Subsequently, it is required to make settings in the printer driver to have the internal hard disk recognized by the printer recognize.

If the printer driver hasn’t been set up, set up the printer driver by referring to the relevant user’s manual (Setup) and then perform the following setup by taking steps described on the following pages.

8. Set up Hard Disk in the printer driver.

Note! • Administrator privileges on the computer are required.
• The internal hard disk cannot be used with a Windows PCL XPS driver.

Windows PS printer driver



(Screen of Windows XP)

❶ For Windows Vista/Server 2008, select [Start] - [Control Panel] - [Printers].

For Windows XP, select [Start] - [Control Panel] - [Printers and Other Hardware] - [Printers and Faxes].

For Windows Server 2003, select [Start] - [Printers and Faxes].

For Windows 2000, select [Start] - [Settings] - [Printers].

❷ Right-click the [OKI C830/C821 (PS)] icon and select [Properties].

❸ Click [Get printer information] in [Installable Options] on the [Device Settings] tab, and click [Setup] or [Obtain printer information]. When the printer has been connected to the computer via USB, manually set the [Hard Disk] setting to [Installed].

❹ Click [OK].

Setting for Windows PCL Printer Driver

(Screen of Windows XP)

❶ For Windows Vista/Server 2008, select [Start] - [Control Panel] - [Printers].

For Windows XP, select [Start] - [Control Panel] - [Printers and Other Hardware] - [Printers and Faxes].

For Windows Server 2003, select [Start] - [Printers and Faxes].

For Windows 2000, select [Start] - [Settings] - [Printers].

❷ Right-click the [OKI C830/C821 (PCL)] icon and select [Properties].

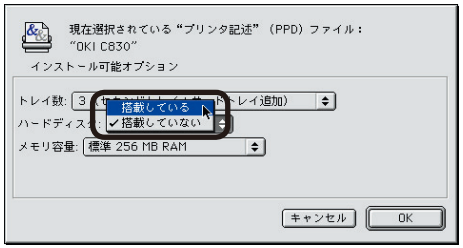
❸ Select [Obtain printer information] on the [Device Options] tab. For USB connection, check [Hard Disk] manually.

❹ Click [OK].

Settings for Macintosh

In Macintosh, when options are added before installation of the printer driver, device information can be automatically obtained. When options are added after installing the printer driver, make the settings of options according to the following steps.

Network connection



❶ Select the printer in [Chooser] and click [Reconfigure].

❷ Click [Configuration].

❸ Select Installed for the [Hard Disk] and click [OK].

❹ Close [Chooser].

USB connection

❶ Drag the printer icon to the trash on the desktop and empty the trash.

❷ Using the Desktop Printer Utility, create the desktop printer again. When the desktop printer is created again, the setting is also updated.

Memo For how to create the desktop printer, see “Creating the Desktop Printer” of “Setup for Macintosh with USB Connection” in the user’s manual (Setup).

Settings for Mac OS X

In Mac OS X, when options are added before installing the printer driver, device information can be automatically obtained, but when connected via IP Print or Bonjour (Rendezvous), device information cannot be automatically obtained.

Also, when connected via AppleTalk, device information cannot be automatically obtained if options are added after installing the printer driver.

In the above cases, you need to set up options according to the following steps.

For Mac OS X 10.5 users

❶ Select [Apple Menu] - [System Configuration].

❷ Click [Printers and Faxes]. Select a printer name and click [Options and Supplies] to select the [Driver] tab.

❸ Select an appropriate value in [Hard Disk] and click [OK].

For users other than Mac OS X 10.5 users

❶ Double-click [Application] - [Utilities] - [Printer Setup Utility] in the hard disk.

❷ Select [OKI C830/C821] and click [Show Info] and open [Printer Info].

❸ Select [Installable Options].

❹ Check [Hard Disk] and click [Apply Changes].

❺ Close [Printer Info].

3.6 Printing of the configuration report

Check that the printer operates correctly.

You can check the status of installed printer options, menu settings of the printer, consumable usage, and so on.

❶ Load A4 paper in Tray1.

❷ Check to make sure that [Ready to Print] is displayed on the panel.

❸ Press the button several times until [Printer Information Printing] is selected, and then press the ENTER button.

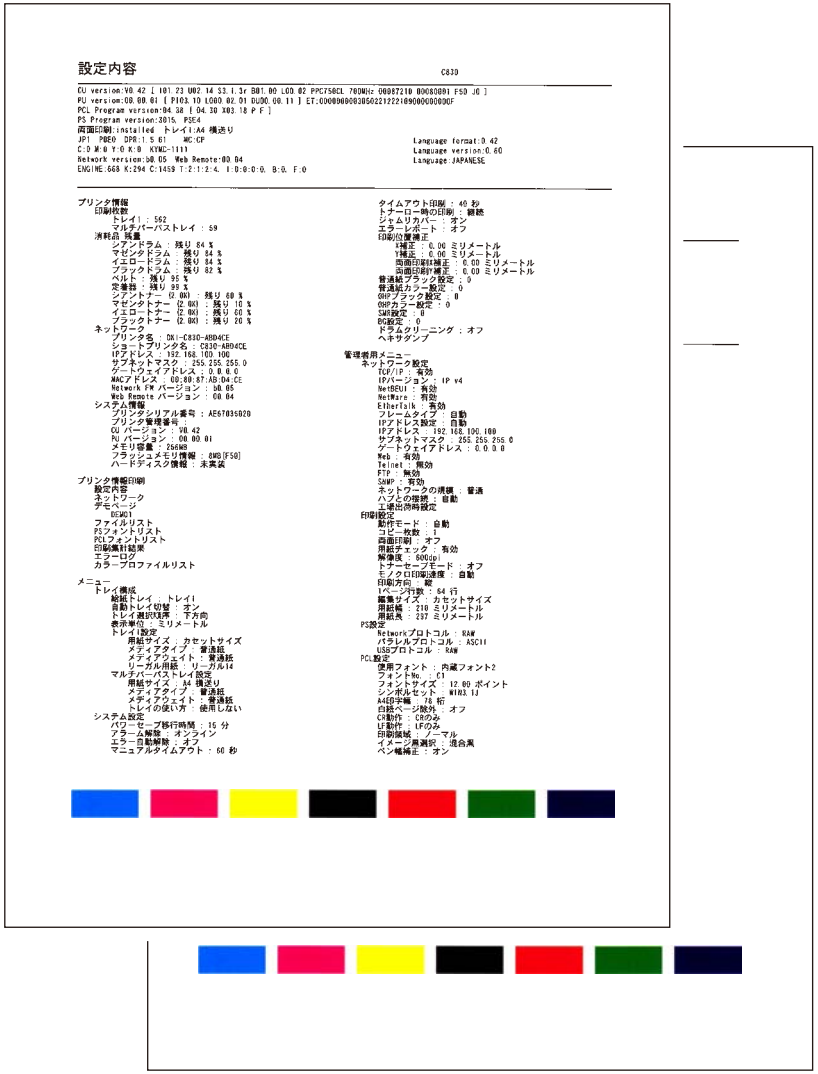
❹ Press the button until [Configuration report] is selected, and then press the ENTER button.

❺ Press the ENTER button.

Printing of the configuration report is started.

Memo To print Network Information (two pages), press the button after the step ❸ to view [Network] and then press the ENTER button.

(Sample)



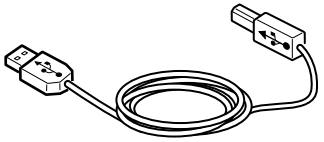
3.7 Connection methods

<USB connection>

Note! Refer to the user's manual for operating environment.

Preparing a USB cable

Note!
- No printer cable is supplied with the printer. Ask the user to prepare a printer cable.
- Ask the user to prepare a USB cable.
- When connection is to be made in "High-Speed" mode with a USB 2.0, use a Hi-Speed-ready USB 2.0 cable.
- A USB 2.0 cable to be used must be no more than five meters long. A USB cable of two meters or less is recommended.



Switching off the printer and the computer

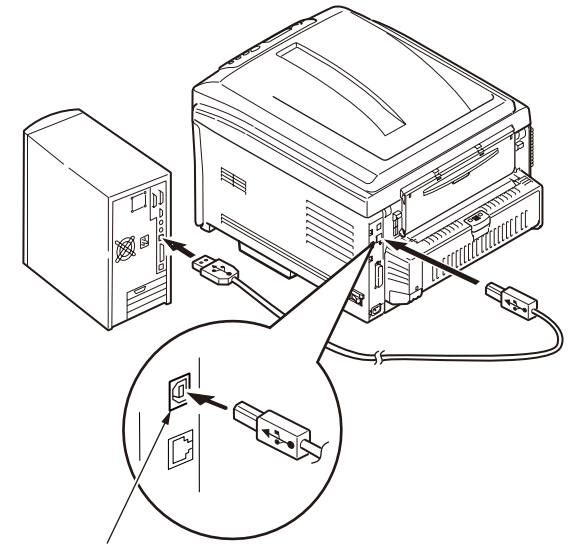
Memo Although a USB cable can be plugged in or unplugged with the computer and the printer switched on, for secure installation of the USB driver and the printer driver to be performed subsequently, the printer should be turned off.

Connecting the computer to the printer

(1) Plug the USB cable into the USB interface connector of the printer.

(2) Plug the USB cable into the USB interface connector of the computer.

Note! Be careful not to plug the USB cable into the network interface connector. Such wrong connection could cause malfunction.



Memo For the setup procedure of the printer driver, see the user's manual.

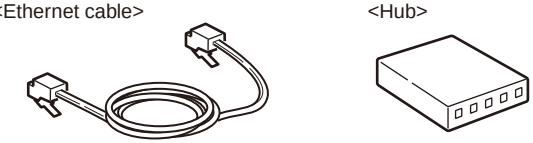
<Ethernet cable connection>

Note! Refer to the user's manual for operating environment.

Preparing an Ethernet cable

Note! An Ethernet cable and a hub do not come with the printer. Ask the user to prepare an Ethernet cable (a Category 5 twisted pair cable, straight through) and a hub.

<Ethernet cable> <Hub>

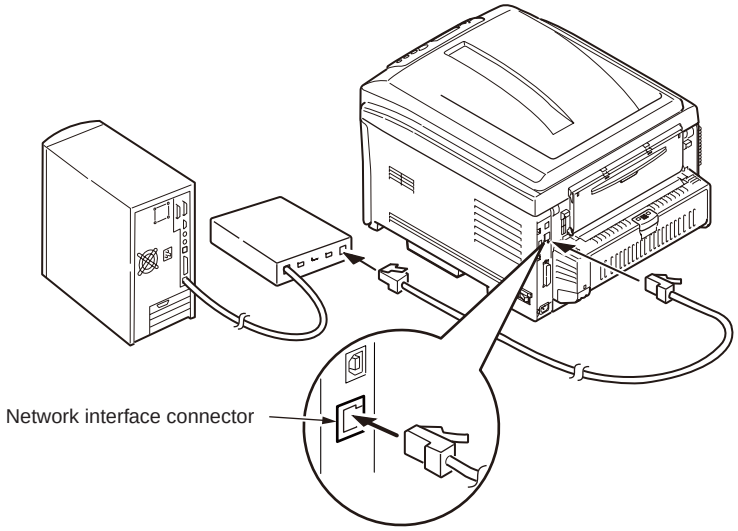


Switching off the printer and the computer

Connecting the computer to the printer

(1) Plug the Ethernet cable into the network interface connector of the printer.

(2) Plug the Ethernet cable into the hub.

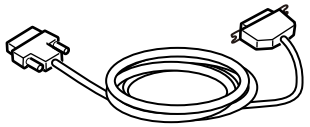


Memo For the setup procedure of the printer driver, see the user's manual.

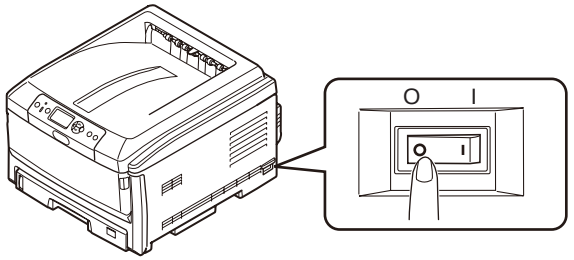
<Parallel connection>

Preparing a parallel cable

Note! A parallel cable does not come with the printer. Ask the user to prepare a parallel cable.



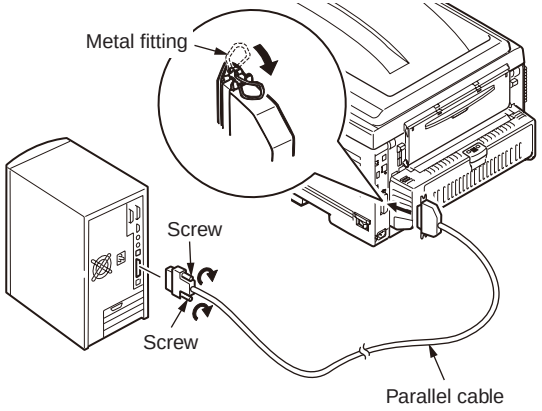
Turning off the printer and the computer.



Connecting the computer to the printer

(1) Connect a parallel cable to the parallel interface connector of the printer and lock the cable with the metal fitting.

(2) Connect the parallel cable to the parallel interface connector of the computer and tighten the cable clamp screws.



3.8 Checking of paper used by the user

Load the media used by the user in the printer, make media weight/media type settings, execute configuration/demo printing, and check the printout to make sure that no toner flakes off.

Type	Weight or thickness	Settings on the operator panel		Setting*2 for [Media weight] of the printer driver
		Media weight (paper thickness)	Media type (paper type)*1	
Plain paper*3	55-70 kg (64-82g/m^2)	Light	Plain paper	Light
	71-77 kg (83-90g/m^2)	Medium Light		Medium Light
	78-90 kg (91-105g/m^2)	Medium		Medium
	91-110 kg (106-128g/m^2)	Heavy		Heavy
	111-175 kg (129-203g/m^2)	Ultra heavy 1		Ultra heavy 1
	176-189 kg (204-220g/m^2)	Ultra heavy 2		Ultra heavy 2
Postcard*4	—	—	—	—
Envelope*4	—	—	—	—
Label	0.1 to under 0.17 mm	Heavy	Label	Label 1
	0,17 to 0.2 mm	Ultra heavy 1		Label 2

*1: The factory default for the media type is [Light/OEL] [Medium Light/ODA].

*2: Media weight and type can be set on the operator panel and in the printer driver. The settings in the printer driver take priority. Data is printed out in accordance with the setting on the operator panel when [Auto selection] is selected in [Feed tray] or [Printer setting] is selected in [Media weight].

*3: The weight of the paper supported for duplex print is 55-90 kg (64-105g/m^2).

*4: It is not necessary to set media weight and type for postcards and envelopes.

Memo Print speed decelerates when [Heavy] or [Ultra heavy] of media weight or [Label paper] of media type is set.

4. REPLACEMENT OF PARTS

This chapter describes the procedures of the field replacement of parts, assemblies and units. The procedures are to detach them. Reverse the procedures to attach them.

The reference part numbers used in this manual (such as ① and ②) do not identical to the part numbers in the maintenance disassembly configuration diagram 44015501TL and the RSPL 44015501TR.

4.1 Notes on replacement of parts 62
4.2 Part replacement procedure 64
4.3 Portions lubricated 103

4.1 Notes on replacement of parts

(1) Prior to replacing a part, unplug the AC cord and the interface cable.

(a) Be sure to use the following procedure to unplug the AC cord:

① Turn off the printer (the power switch to the off (O) position).

② Pull out the AC plug of the AC cord from the AC power source.

③ Unplug the AC cord and the interface cable.

⚠Warning	Electric shock hazard.	⚡

When replacing the low-voltage power supply, due to potential electric shock, wear insulated gloves or be careful not to touch the conductors or terminals of the power supply directly.

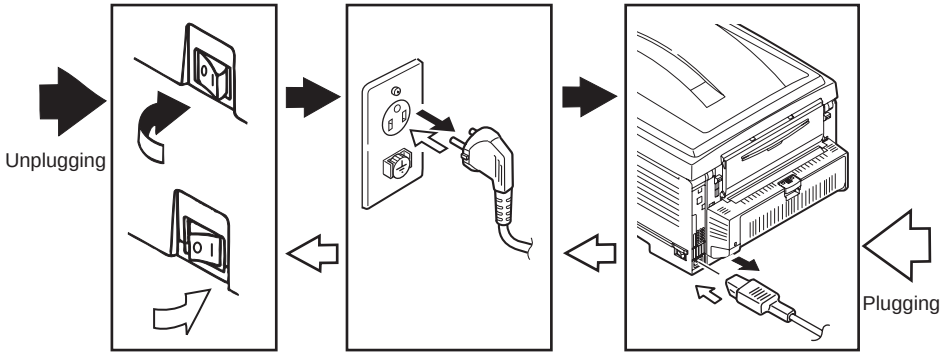
After the AC cord is unplugged, the capacitor may take about one minute to discharge completely, or could not discharge due to PCB breakdown. Use caution about electric shock.

(b) Be sure to use the following procedure to reconnect the printer:

① Connect the AC cord and the interface cable to the printer.

② Insert the AC plug into the AC power source.

③ Turn on the printer (the power switch to the on (I) position).



(2) Do not disassemble the printer so long as it operates properly.

(3) Minimize disassembly. Do not detach the parts not shown in the part replacement procedure.

(4) Use the replacement tools specified.

(5) Conduct disassembly in the order instructed, or part damage may occur.

(6) Removed small parts, such as screws or collars, should be tentatively installed in their original positions.

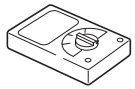
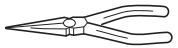
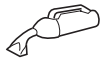
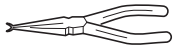
(7) Do not use static-prone gloves when handling integrated circuits (ICs) or circuit boards, including microprocessors, and ROM and RAM chips.

(8) Do not place printed-circuit boards (PCBs) directly on the printer or a floor.

Maintenance Tools:

Table 4-1-1 shows the tools necessary to replace printed-circuit boards and units:

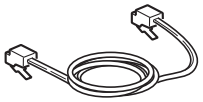
Table 4-1-1: Maintenance Tools

No.	Maintenance Tool		Quantity	Use	Remarks
1		No. 2-200 screwdriver with magnetic tip	1	3- to 5-mm screws	
2		Screwdriver No. 3-100	1		
3		Screwdriver No. 5-200	1		
4		Digital multimeter	1		
5		Pliers	1		
6		Handy vacuum cleaner (toner vacuum)	1		See note.
7		E-ring pliers	1	E-shaped ring removal	

Note! Use a toner vacuum. Using a general-purpose vacuum may cause toner to catch fire.

Table 4-1-2 shows the tools necessary to use Maintenance Utility software.

Table 4-1-2: Maintenance Tools

No.	Maintenance Tool		Quantity	Use	Remarks
1		Notebook personal computer (with Maintenance Utility software installed)	1	3- to 5-mm screws	See section 5.2 for Maintenance Utility.
2		USB cable	1		
3		Ethernet cable (crossover cable)	1		

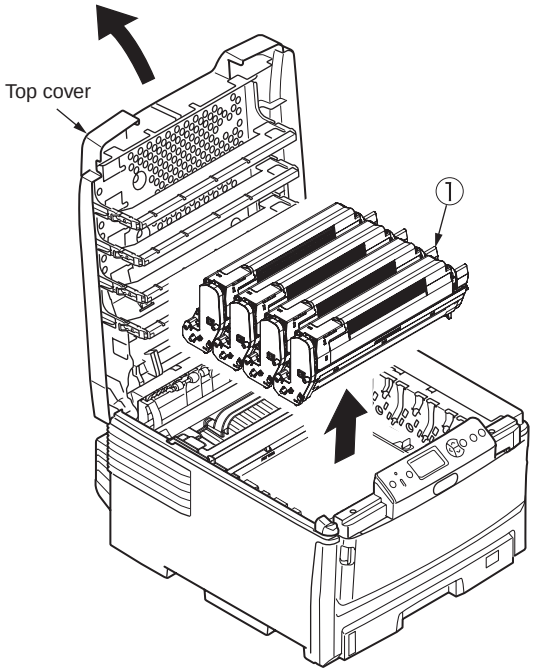
4.2 Part replacement procedure

This section describes the procedure for replacing the parts and assemblies shown in the disassembly diagram.

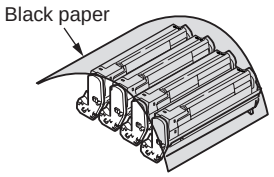
4.2.1 Belt unit

(1) Open the top cover.

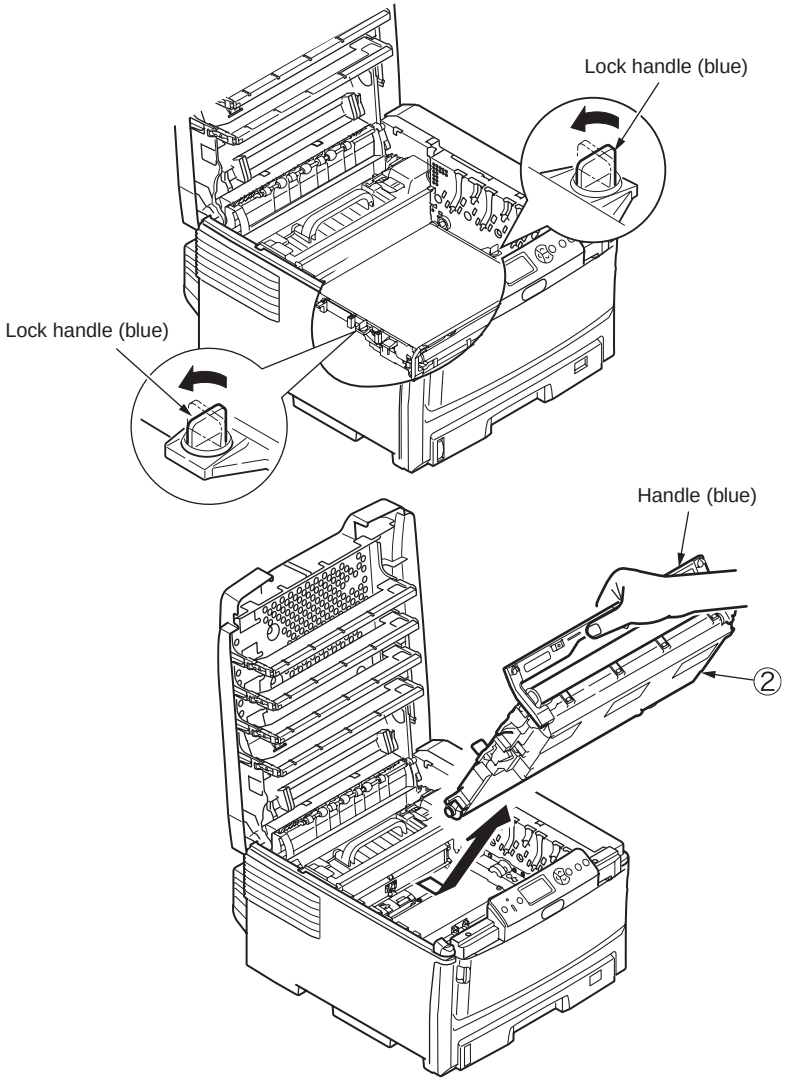
(2) Remove the image drum unit ①.



Note! Cover the image drum cartridges with a piece of black paper.



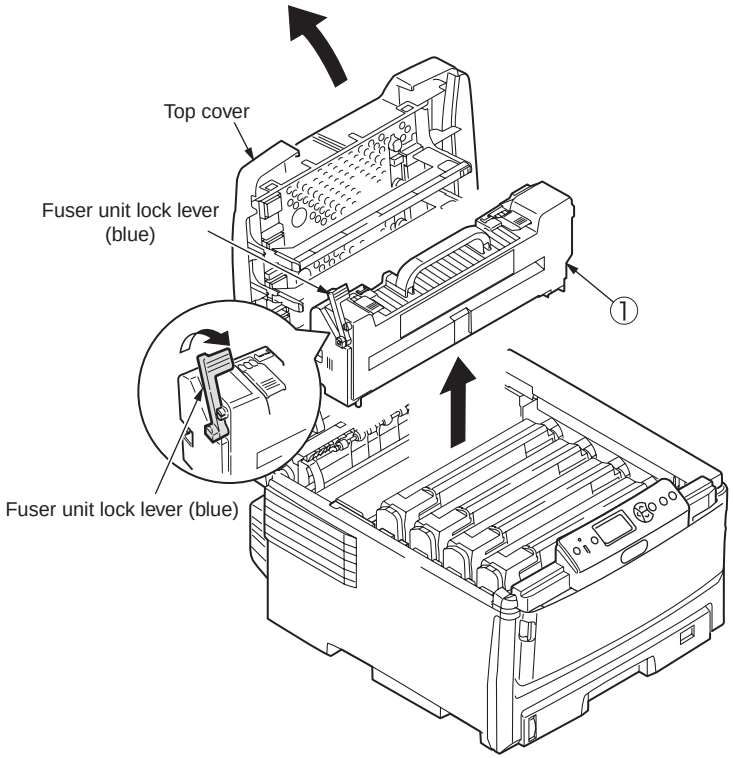
(3) Turn the two lock handles (blue) of the belt unit ② in the direction of the arrows and, holding the unit by the (blue) handle, detach the unit.



4.2.2 Fuser unit

(1) Open the top cover.

(2) Pull the fuser unit lock lever (blue) in the direction of the arrow and detach the fuser unit ①.

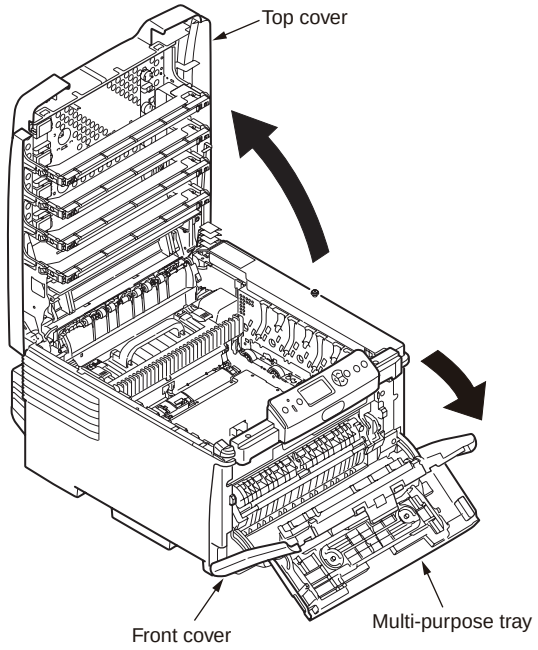


4.2.3 Left side cover

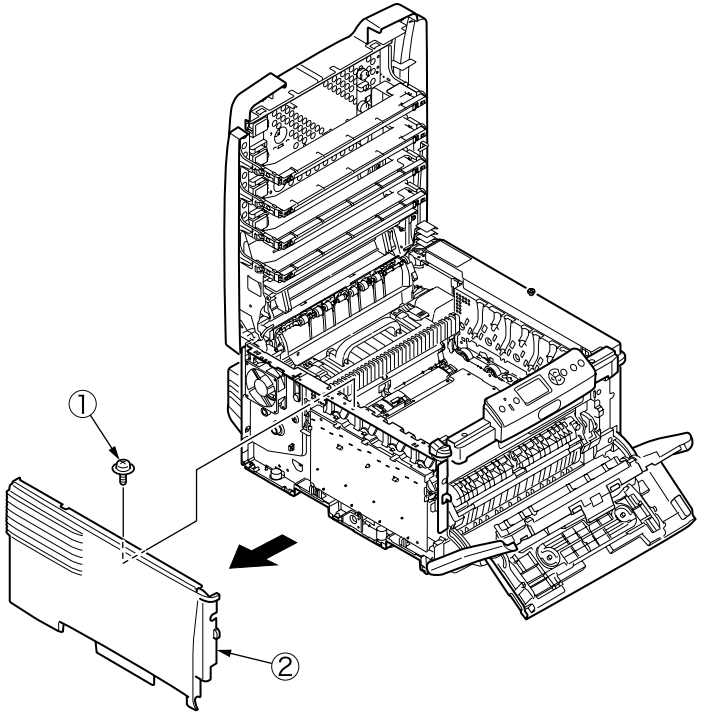
(1) Open the top cover.

(2) Open the multi-purpose tray.

(3) Open the front cover.



(4) Remove the screw (silver-colored) ① to detach the left side cover ② (tool number 1).



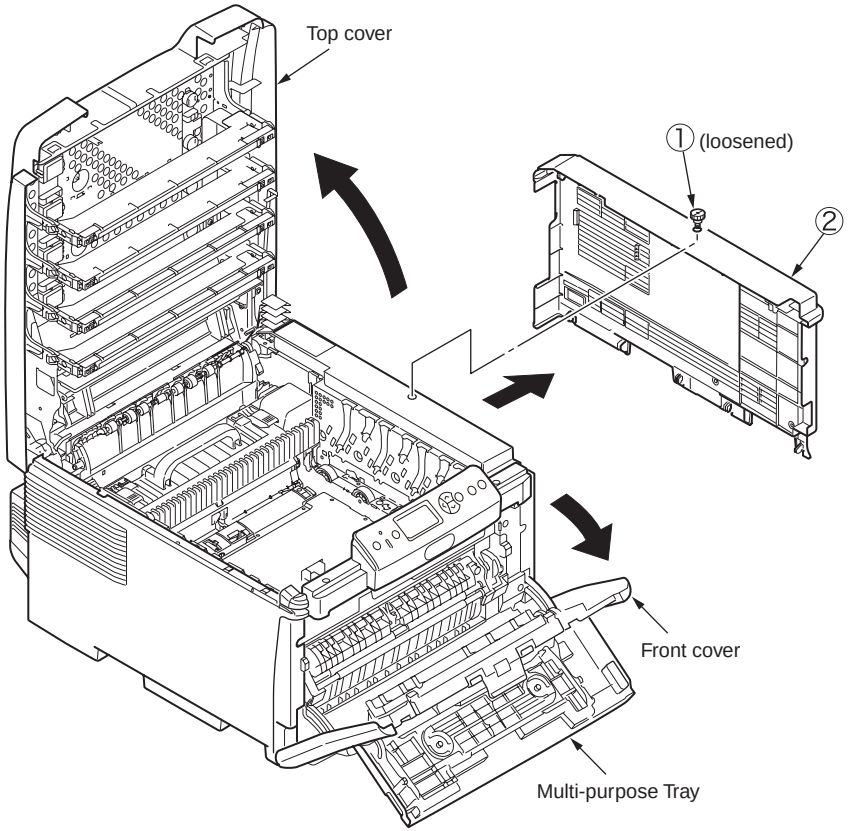
4.2.4 Right side cover

(1) Open the top cover.

(2) Open the multi-purpose tray.

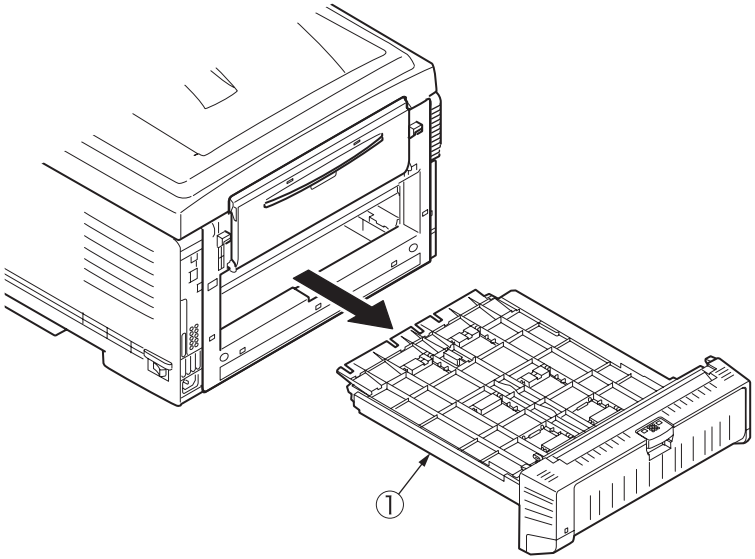
(3) Open the front cover.

(4) Loosen the screw ① and detach the right side cover ② (tool number 1).

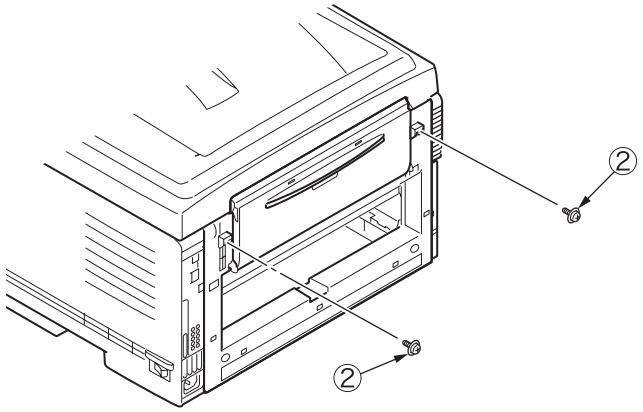


4.2.5 Rear cover Assy.

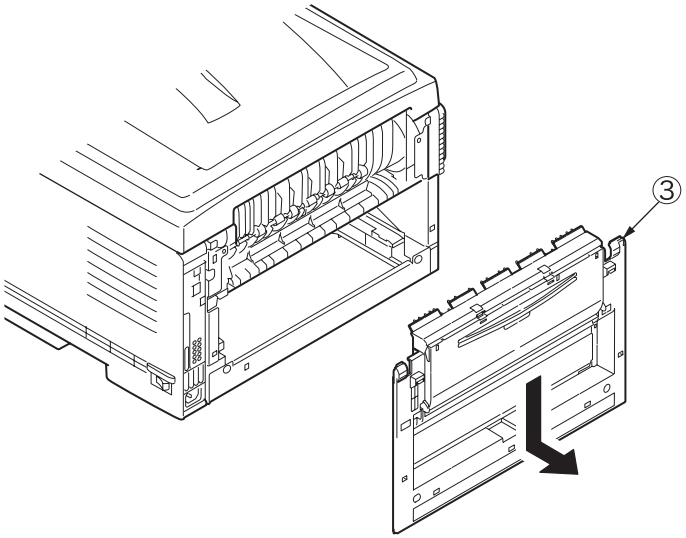
(1) Pull out the duplex unit ①.



(2) Remove the two screws (silver-colored) ② (tool number 1).



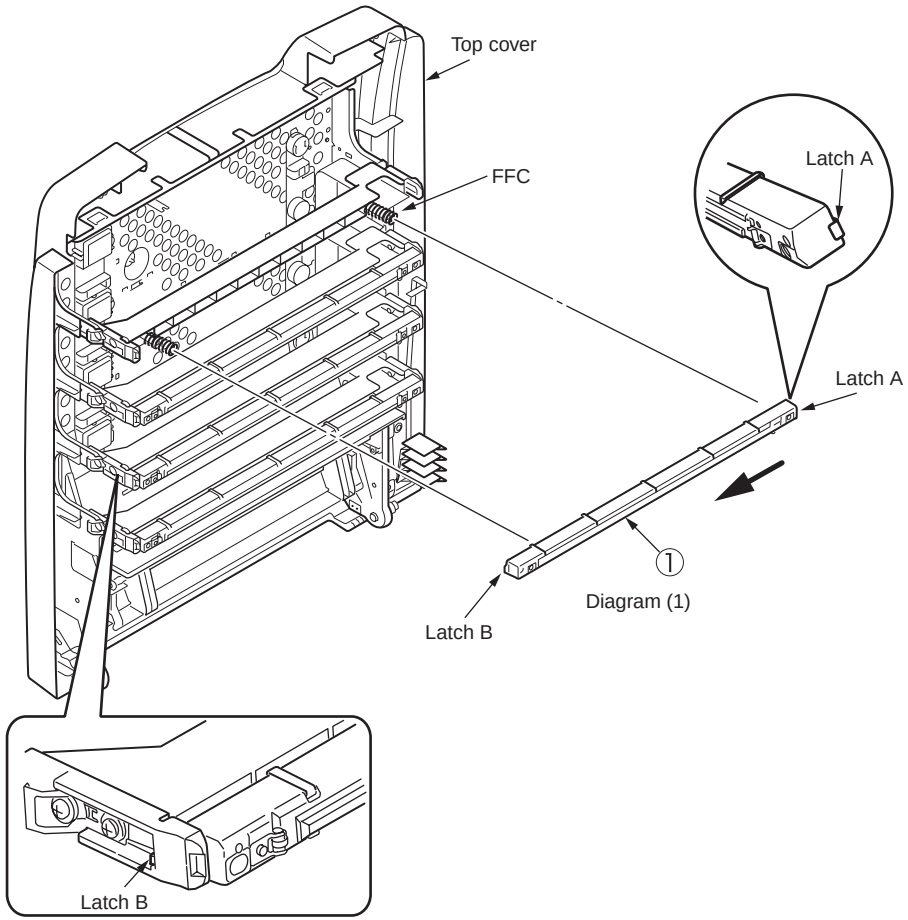
(3) Sliding the rear cover Assy ③ in the direction of the arrow, detach it.



4.2.6 LED Assy.

(1) Open the top cover.

(2) Remove the FFC cables. As shown in diagram (1), applying force in the direction of the arrow, unlatch the portion A, and then the portion B, to detach the LED Assy. ①.

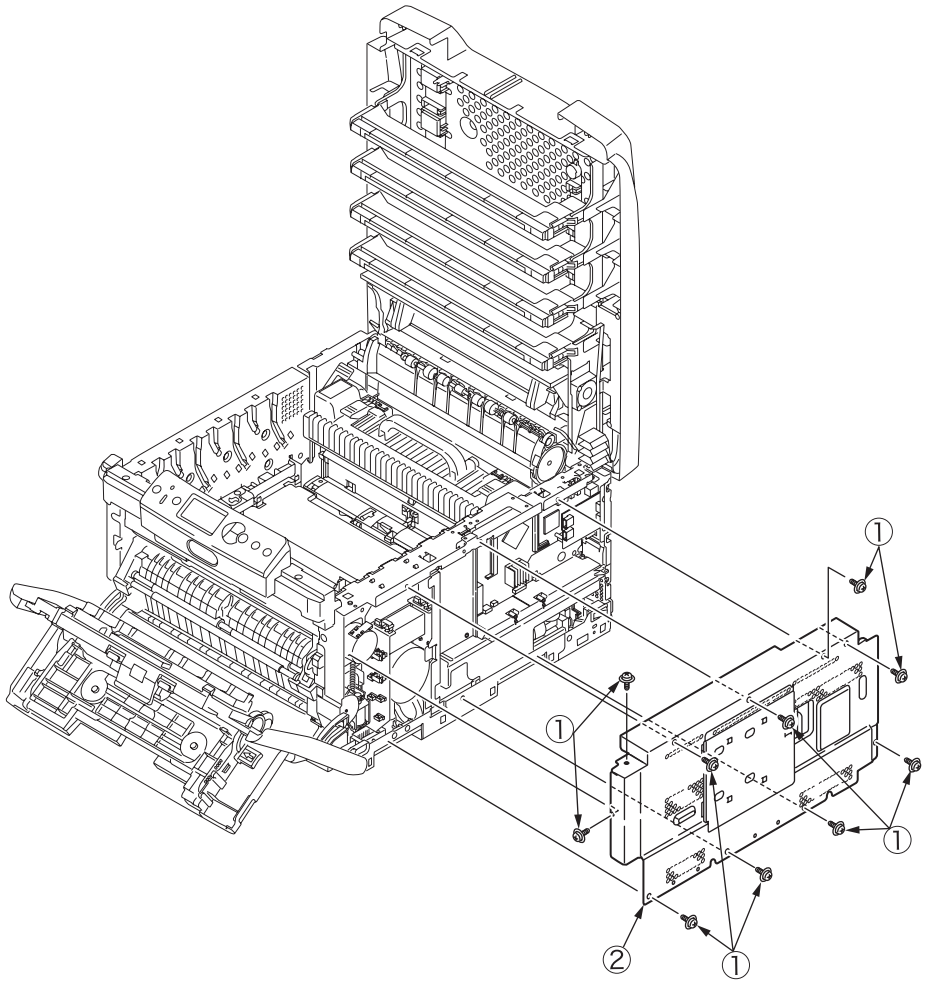


4.2.7 Main controller PCB, image drum motor, image drum lift-up motor and feed motor

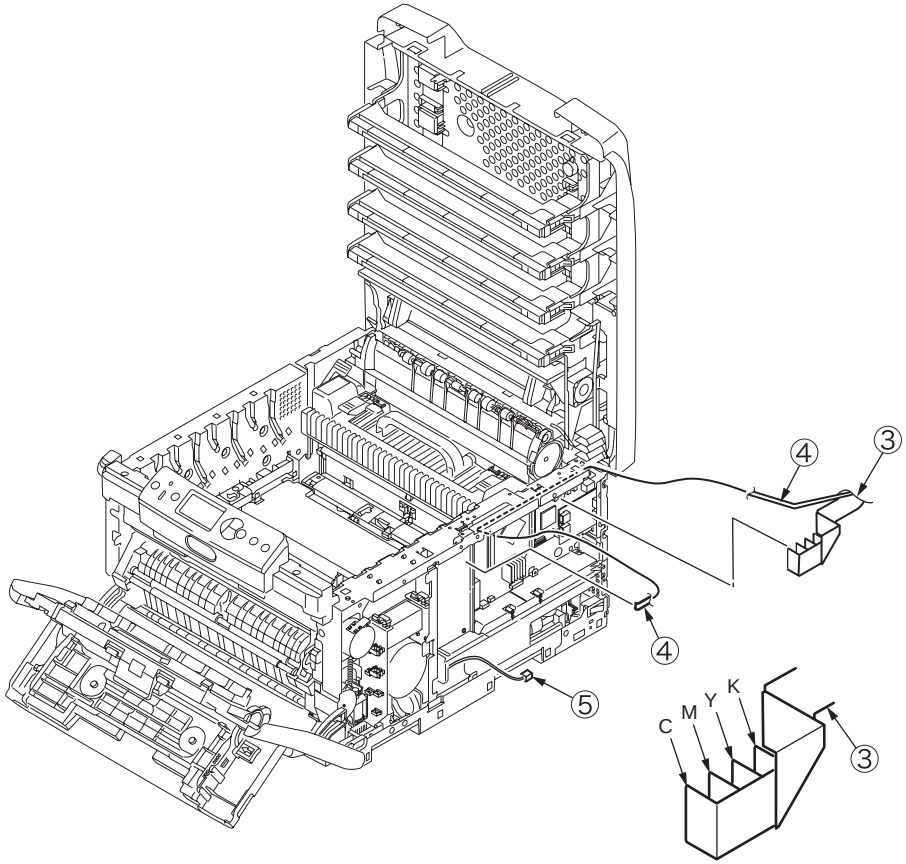
(1) Open the top cover.

(2) Remove the right side cover (see section 4.2.4).

(3) Remove the ten screws (silver-colored) ① and the plate shield Assy. ② (tool number 1).

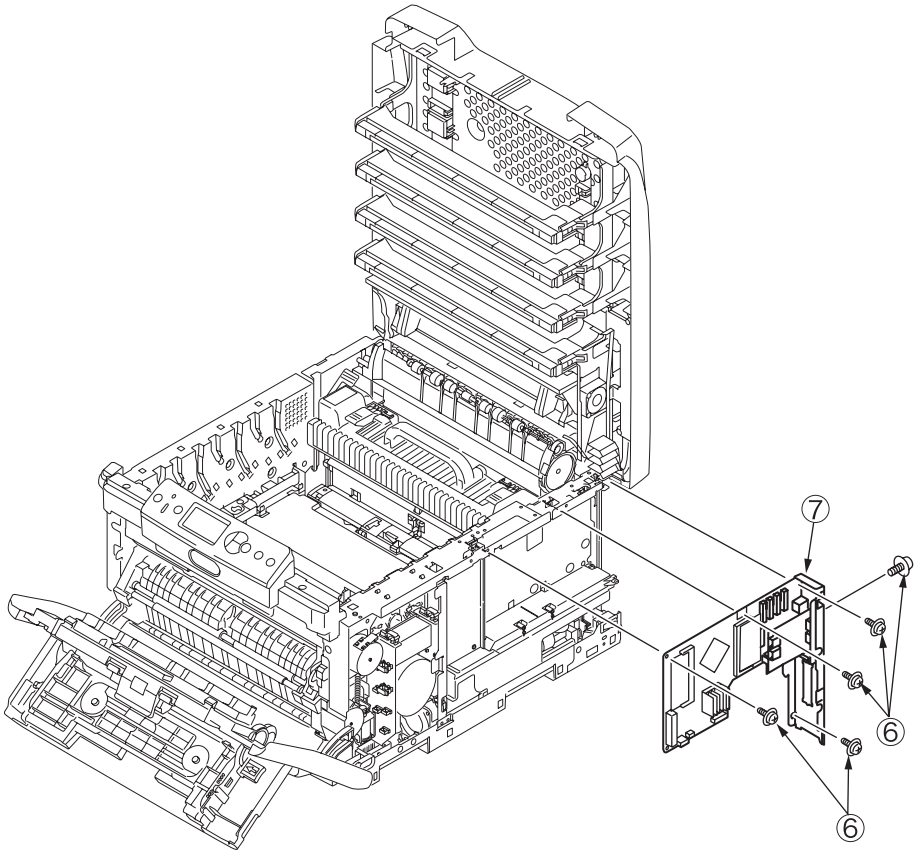


(4) Remove the FFC cables ③ of the LED heads, the RFID FFC cable ④ and the power supply connector ⑤.

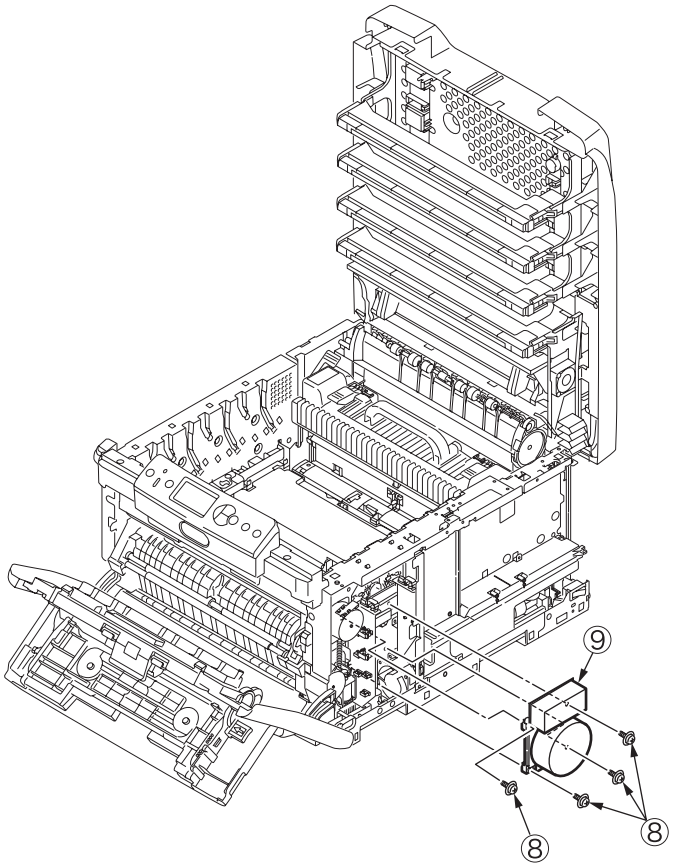


(5) Remove the rear cover Assy. (see section 4.2.5).

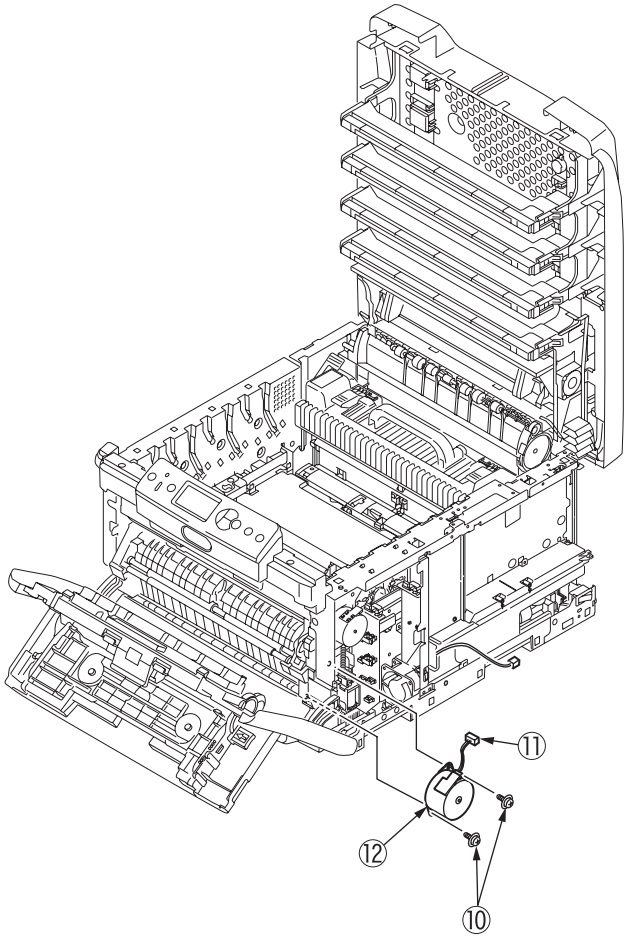
(6) Remove the five screws (silver-colored) ⑥ to detach the main controller PCB ⑦.



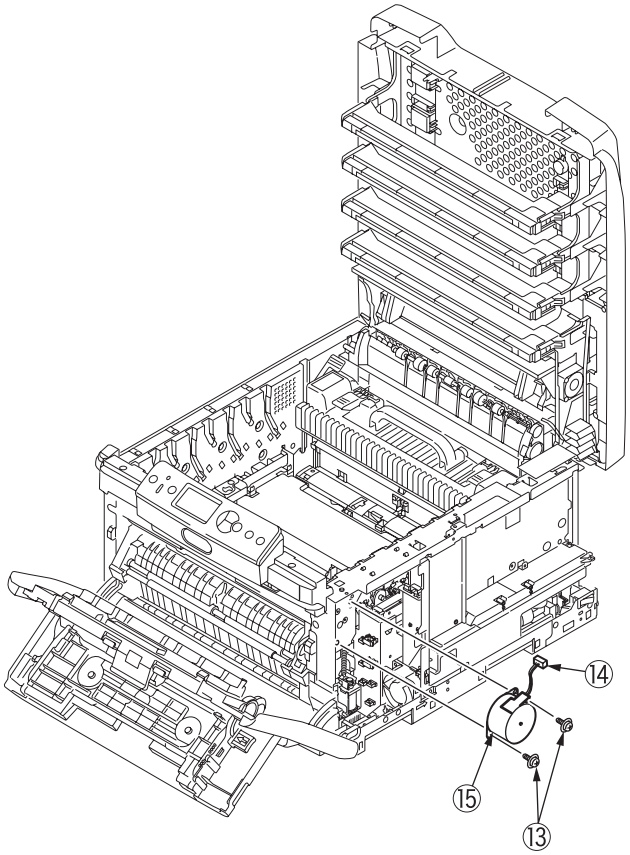
(7) Remove the four screws (silver-colored) ⑧ to detach the image drum motor ⑨ (tool number 1).



(8) Remove the two screws (silver-colored) ⑩ and the cable ⑪ to detach the feed motor ⑫.



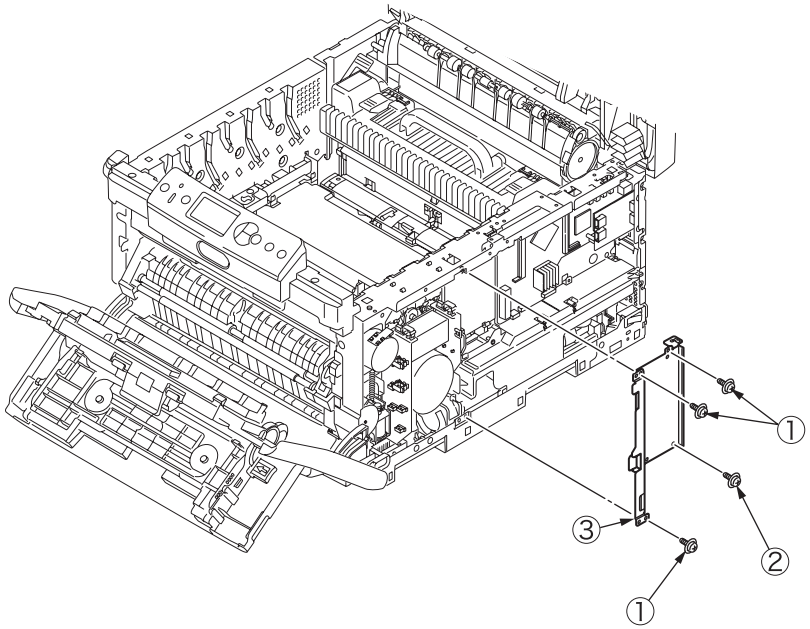
(9) Remove the two screws (silver-colored) ⑬ and the cable ⑭ to detach the image drum lift-up motor ⑮.



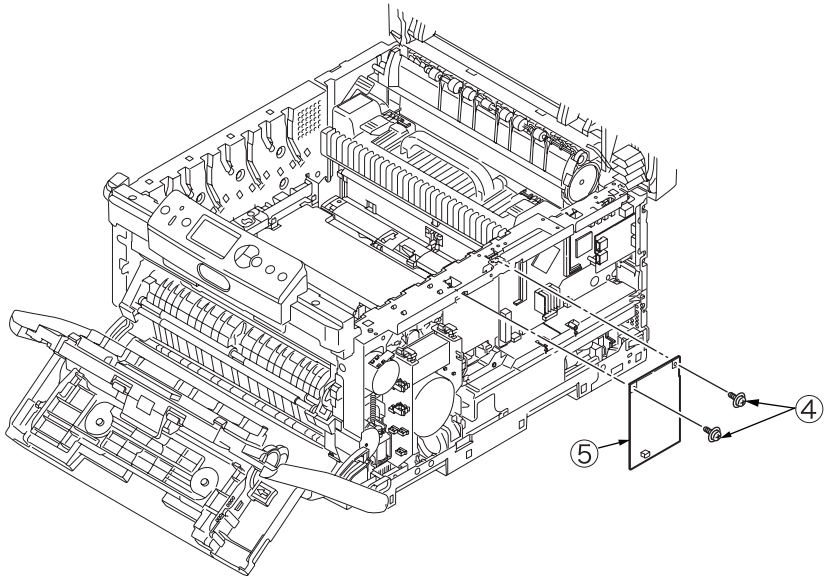
4.2.8 Print engine controller PCB

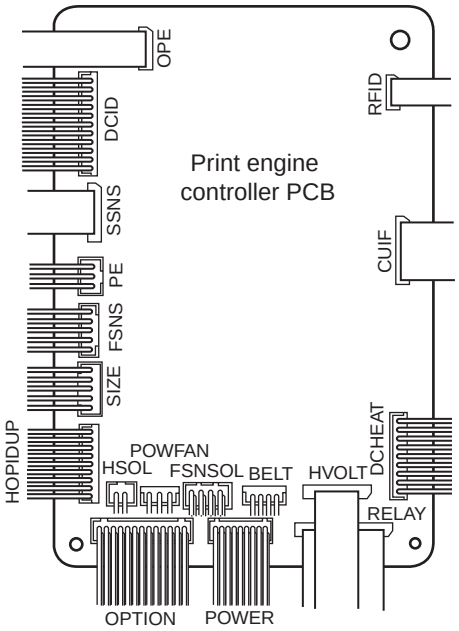
(1) Remove the plate shield Assy. (see section 4.2.7, (1) through (3)).

(2) Remove the three screws (silver-colored) ①, the crew (black) ② and the reinforcement plate ③ (tool number 1).



(3) Remove the all the connectors and the two screws (silver-colored) ④ to detach the print engine controller PCB ⑤ (tool number 1).





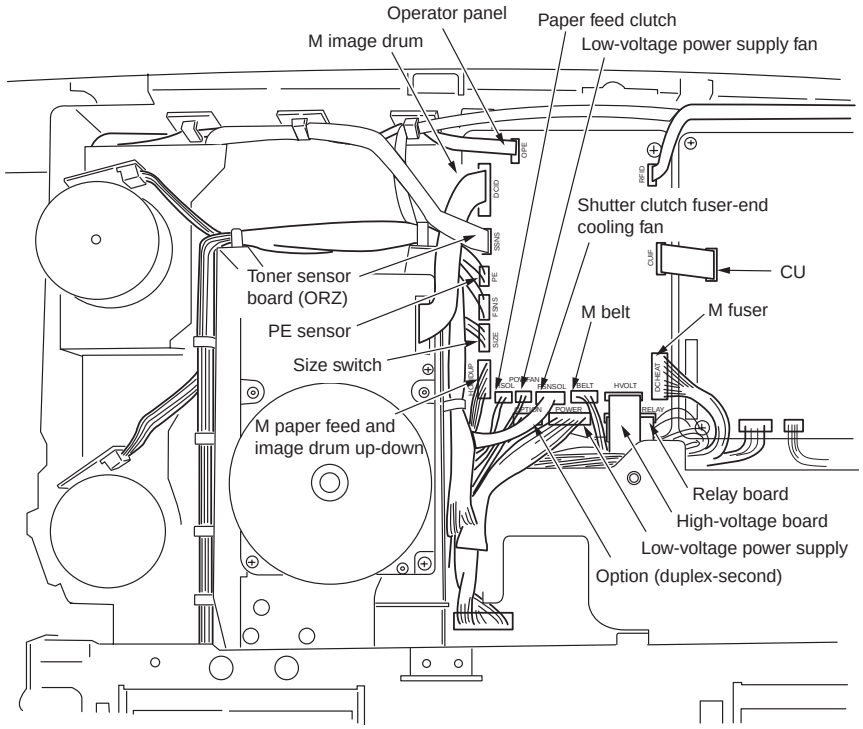


Figure 4-2-8-1: Print engine controller PCB cable routing diagram

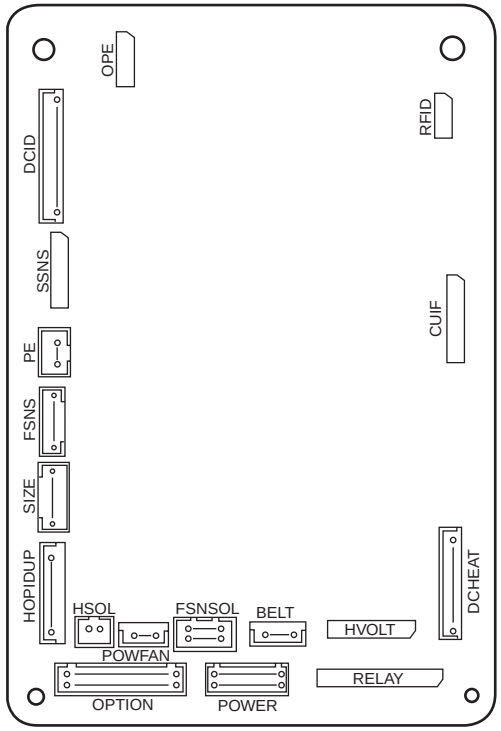


Figure 4-2-8-2: Print engine controller PCB connection diagram

4.2.9 Top cover Assy.

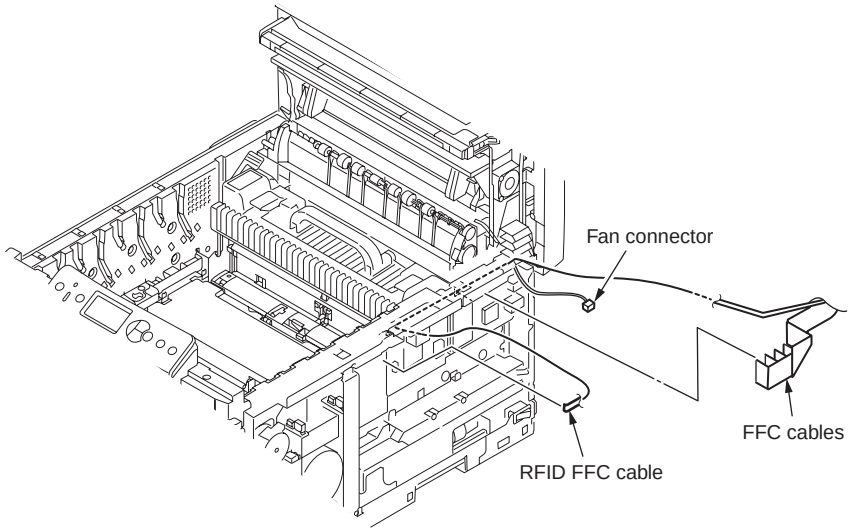
(1) Remove the left side cover (see section 4.2.3).

(2) Remove the right side cover (see section 4.2.4).

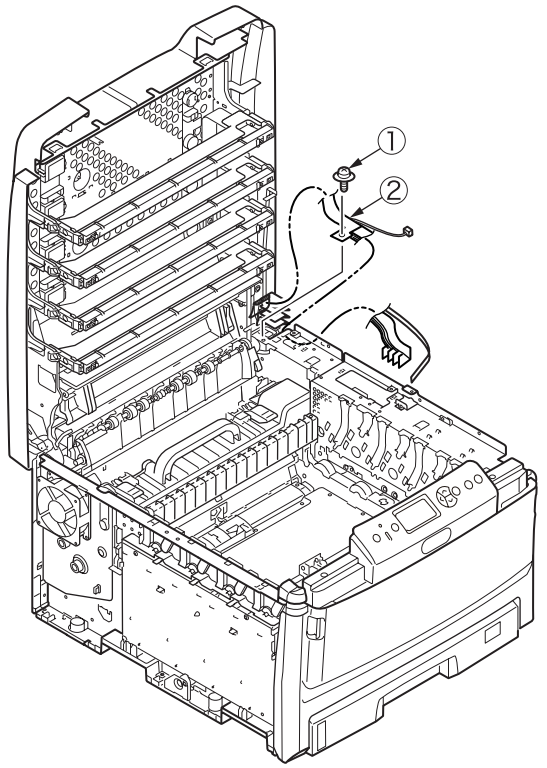
(3) Remove the rear cover Assy. (see section 4.2.5).

(4) Remove the plate Assy. shield (see section 4.2.6).

(5) Remove the four FFC cables, the RFID FFC cable and the fan connector.



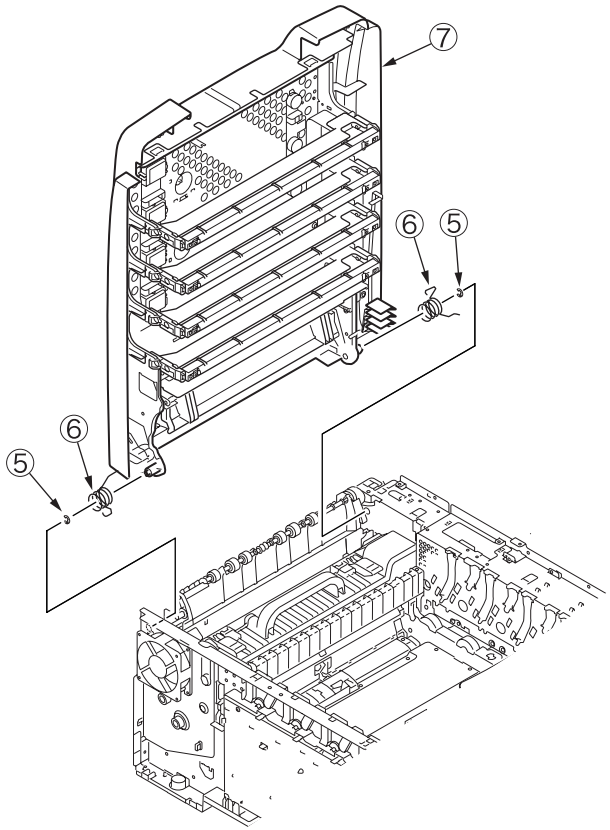
(6) Remove the screw (silver-colored) ① and the cable Assy.-LED heads ② (tool number 1).



(7) Remove the two screws ③ and the fan Assy.④ (see section 4.2.7, (6)).

(8) Remove the five screws (silver-colored) ⑤ and slide out the main controller PCB Assy.⑥ rearward (tool number 1) (see section 4.2.7, (7)).

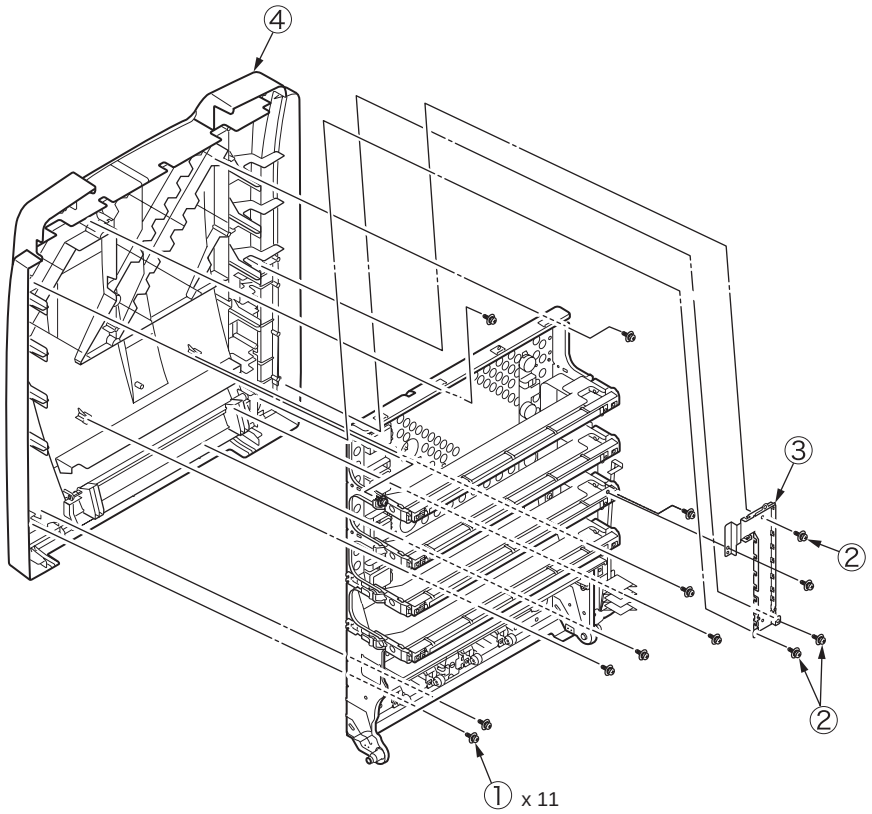
(9) Remove the screw (silver-colored), the two E-shaped retainer rings ⑦ and the two torsion springs ⑧ to detach the top cover Assy.⑨.



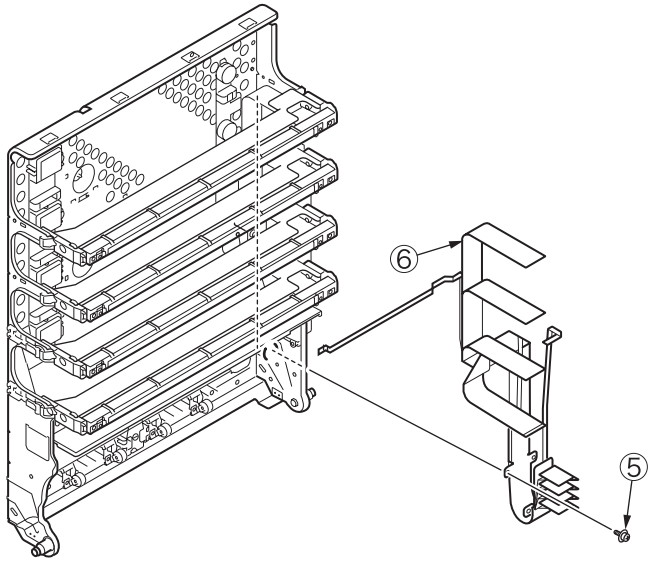
4.2.10 Top cover

(1) Remove the top cover Assy. (see section 4.2.9).

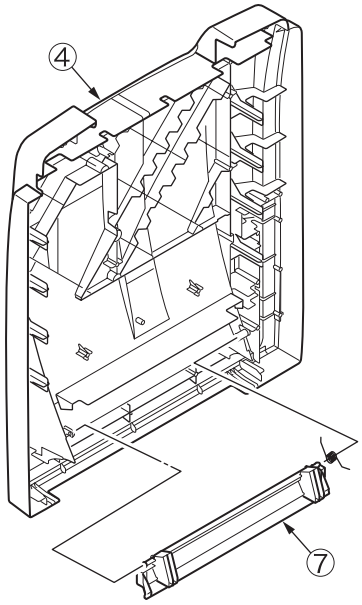
(2) Remove the eleven screws (black) ①, the three screws (black) ②, the cable cover ③ and the top cover ④ (tool number 1).



(3) Remove the screw ⑤ and the cable Assy.-LED heads ⑥.
Remove the film contact.



(4) Warp and remove the auxiliary top cover ⑦.



4.2.11 Operator panel Assy.

(1) Open the top cover.

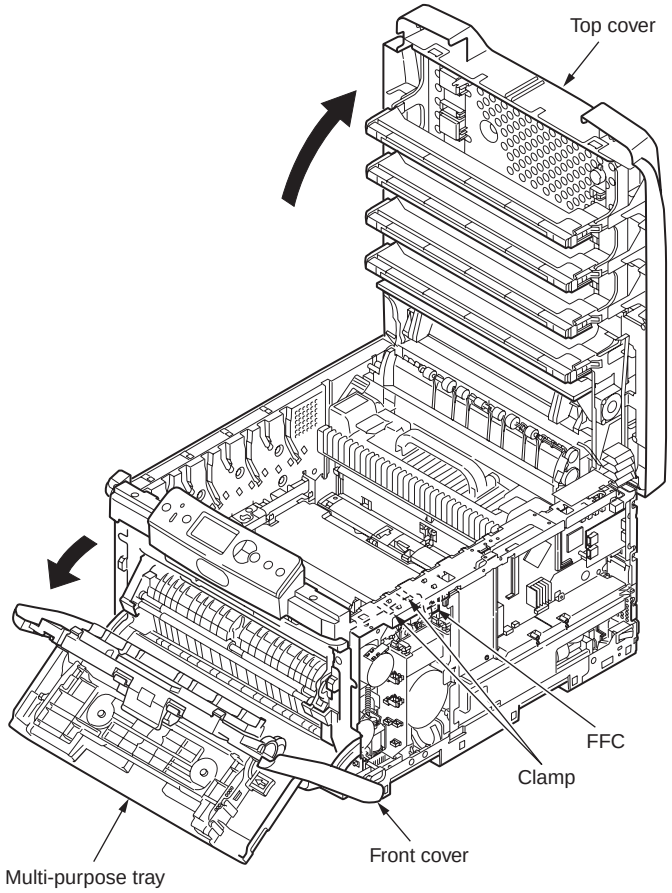
(2) Open the multi-purpose tray.

(3) Open the front cover.

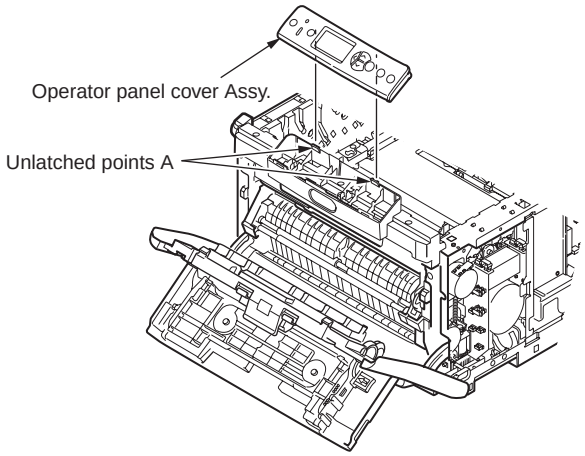
(4) Remove the left and right side covers (see sections 4.2.3 and 4.2.4).

(5) Remove the plate shield Assy. (see section 4.2.7, (2)).

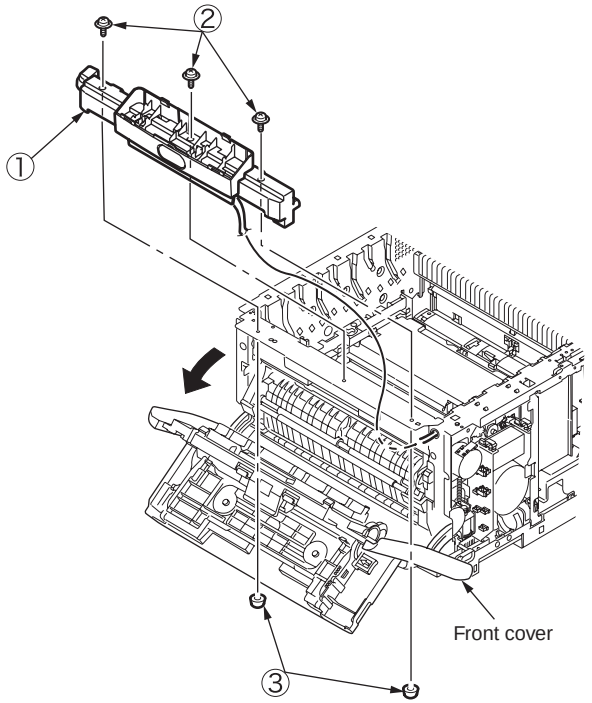
(6) Detach and unclamp (at the two points) the FFC of the operator panel Assy.①.



(7) Unlatch the operator panel cover Assy. at the two points A to remove it and, at the same angle as shown left below, remove the operator panel cover.

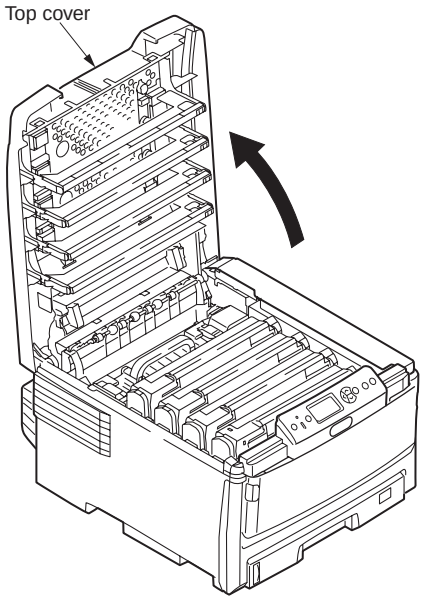


(8) Remove the three screws (silver-colored) ② to detach the operator panel Assy. ① (tool number 1). Be careful about a potential drop of the (black) cap③.

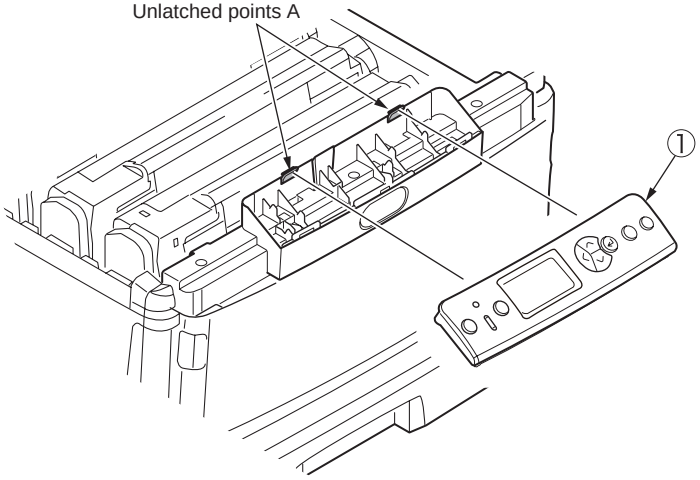


4.2.12 Board PRP

(1) Open the top cover.



(2) Unlatch the operator cover Assy. ① at the two points A, remove the FFC and the Assy.



(3) As shown in diagram (2), unlatch the operator panel cover Assy. at the two points B, remove the board PRP ②, the LCD button ③ and the button key ④.

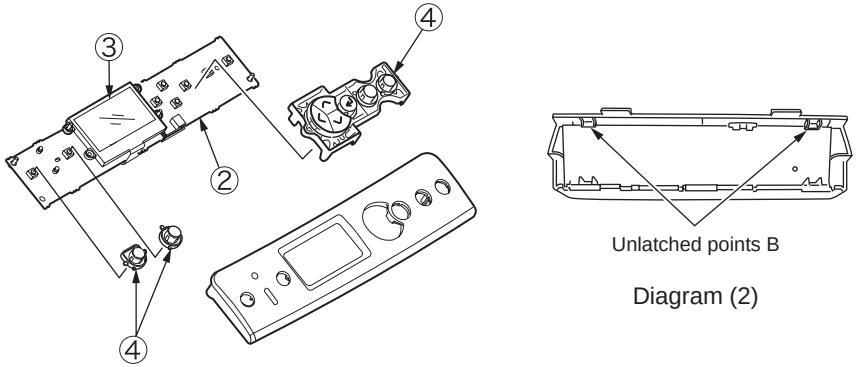
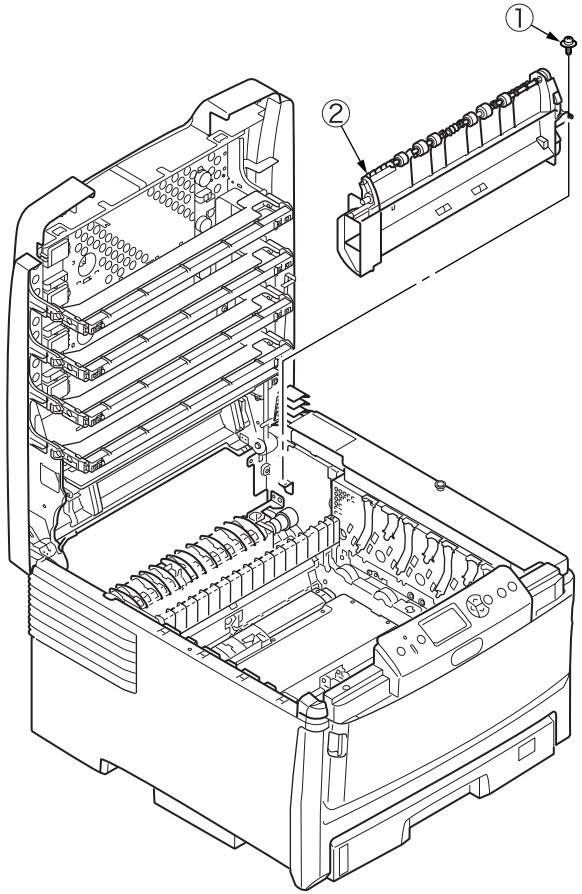


Diagram (2)

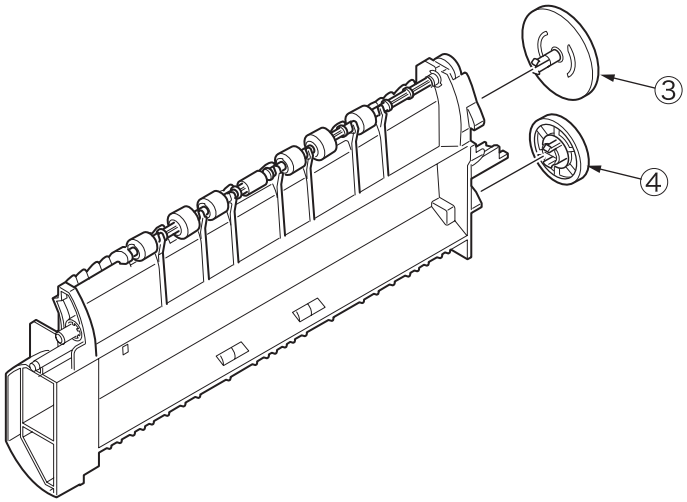
4.2.13 Shaft-ejection Assy. (FU) and shaft-ejection Assy. (FD)

(1) Remove the rear cover Assy. (see section 4.2.5).

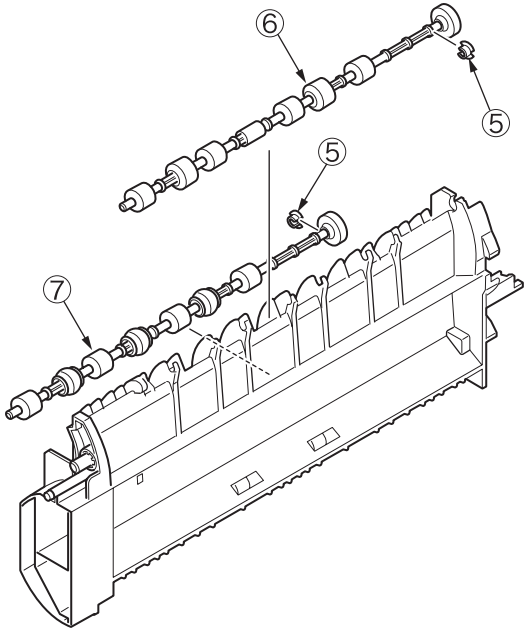
(2) Remove the screw (silver-colored) ① to remove the guide-ejection-Assy.-upper② .



(3) Remove the gears-idler-ejection ③ and ④.



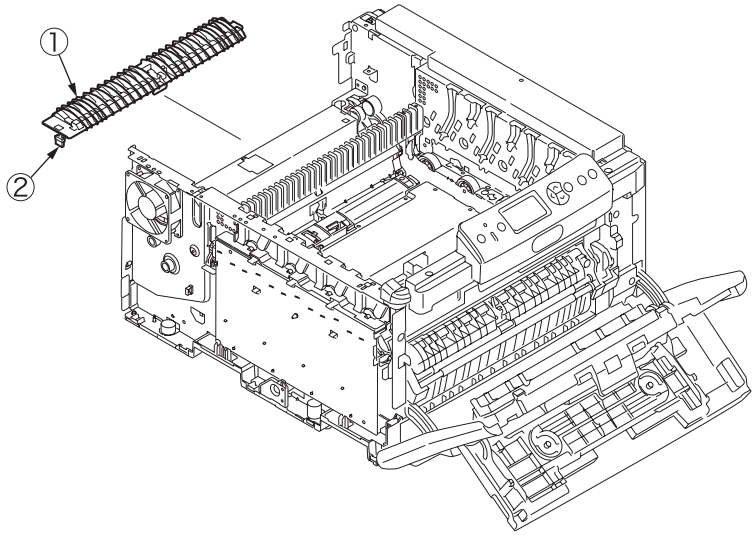
(4) Remove the two molded E-shaped rings ⑤ and warp and detach the shaft-ejection Assy. (FU)⑥ and the shaft-ejection Assy. (FD)⑦ .



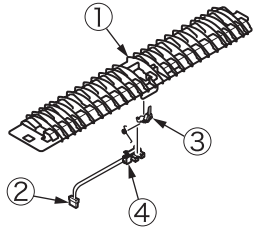
4.2.14 Guide-ejection Assy.-lower, color-registration Assy. and relay board (P6Y)

(1) Remove the left side, right side and rear covers, the top cover Assy., the print engine controller PCB and the guide-ejection Assy.-upper (see sections 4.2.3, 4.2.4, 4.2.5, 4.2.8, 4.2.9 and 4.2.13).

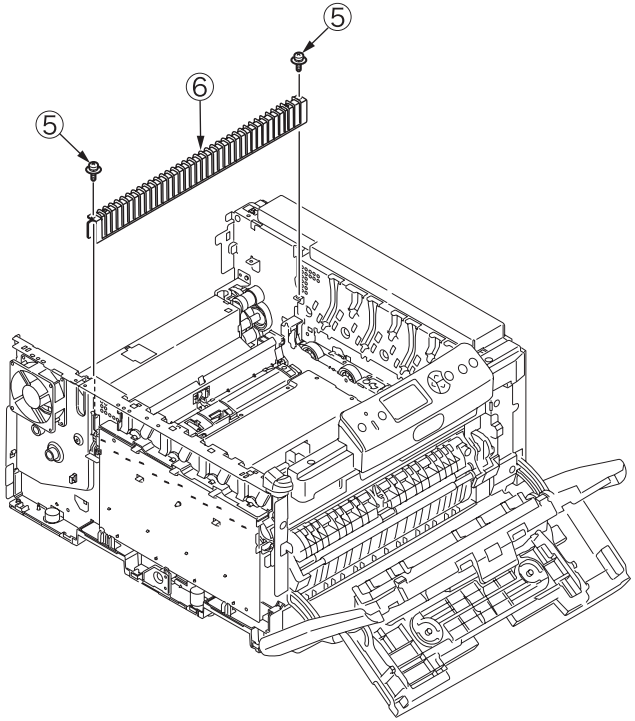
(2) Slide out the guide-ejection-lower ① to the left and remove the connector ②.



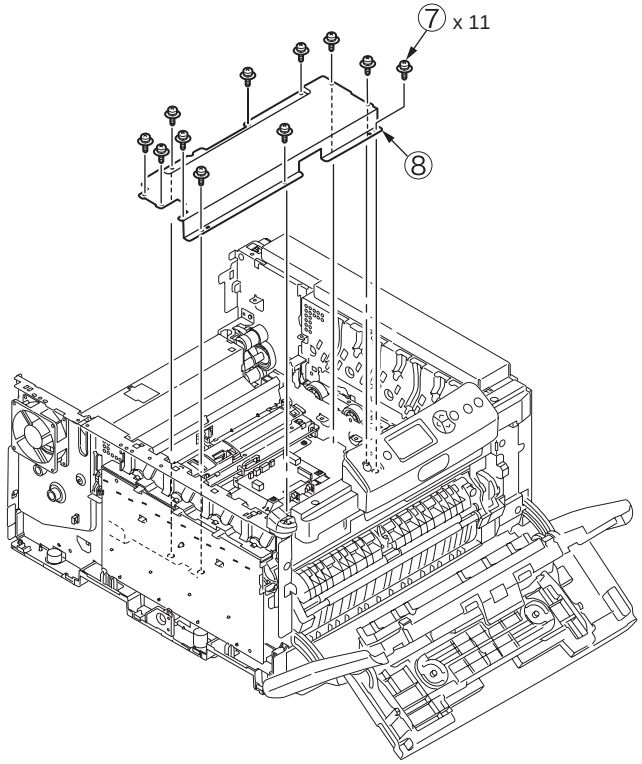
(3) Remove the lever-ejection sensor ③ and the ejection sensor ④.



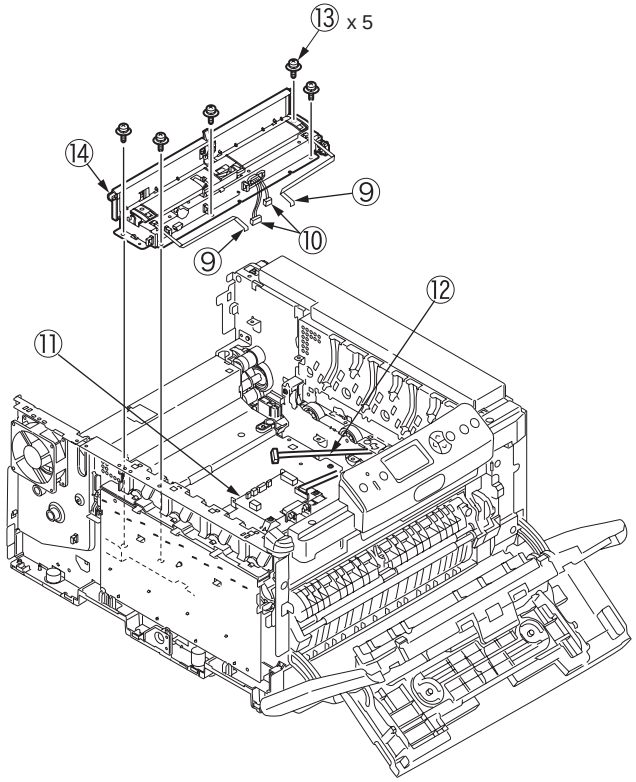
(4) Remove the two screws (silver-colored) ⑤ to remove the auxiliary Assy.⑥ .



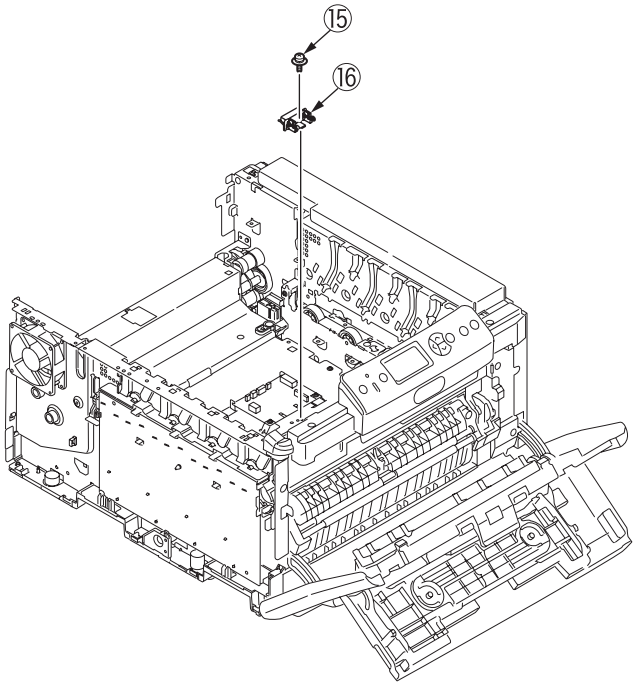
(5) Remove the eleven screws (silver-colored)⑦ to remove the cover plate⑧.



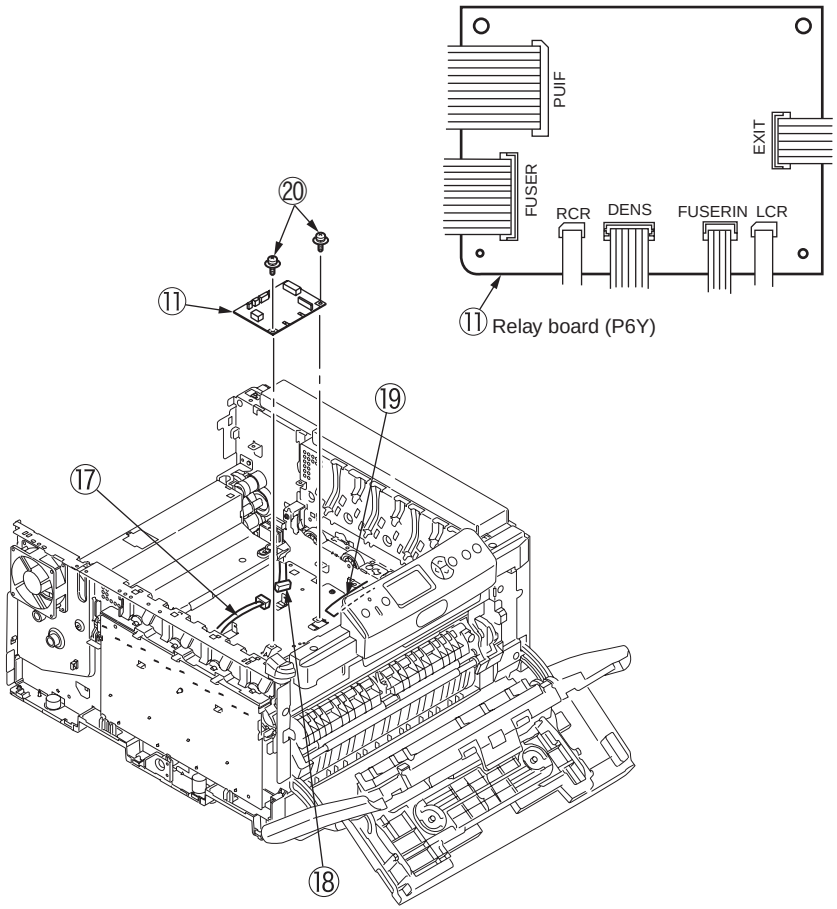
(6) Remove the right and left FFC connectors ⑨ and the two connectors ⑩ from the relay board (P6Y) ⑪, and the connector ⑫ from the color-registration Assy ⑭. Remove the five screws (silver-colored)⑬ to detach color-registration Assy.⑭.



(7) Remove the screw (silver-colored) ⑮ to remove the contact Assy. ⑯ (tool number 1).



(8) Remove the two connectors ⑰ and ⑱, and the FFC connector ⑲ and the two screws (silver-colored) ⑳ to detach the relay board (P6Y) ⑪. (tool number 1)



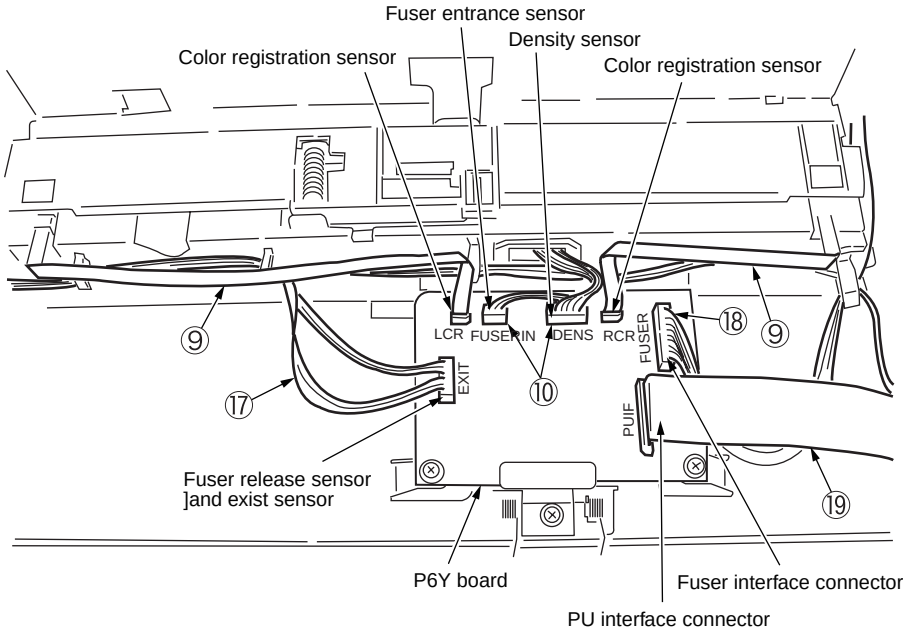


Figure 4-2-14-11: Relay board (P6Y) cable routing diagram

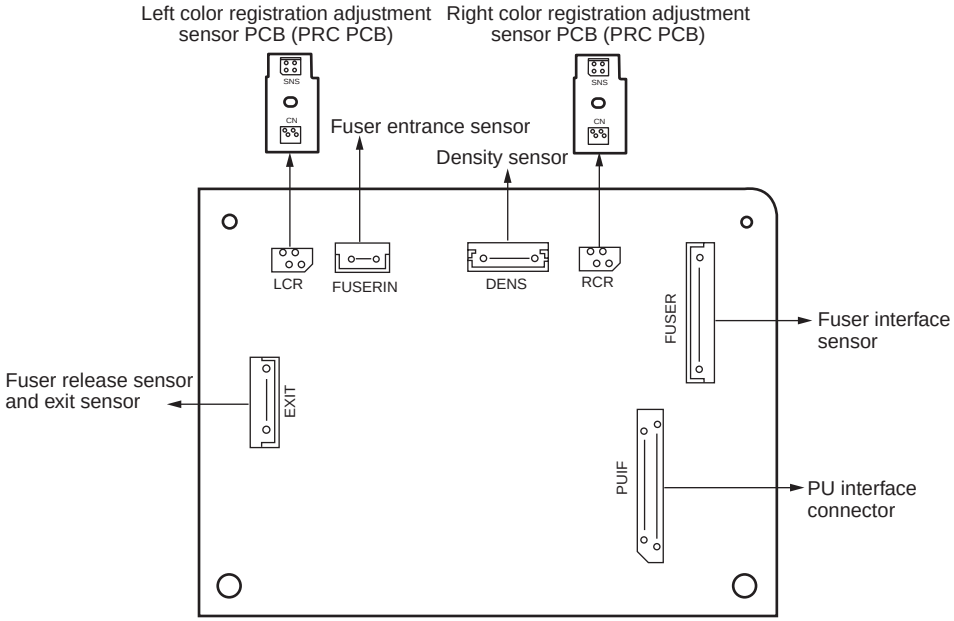
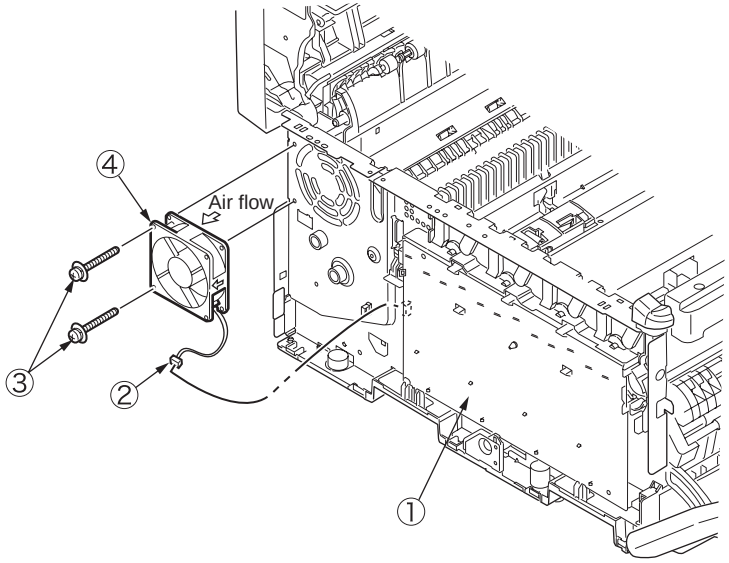


Figure 4-2-14-2: Relay board (P6Y) connection diagram

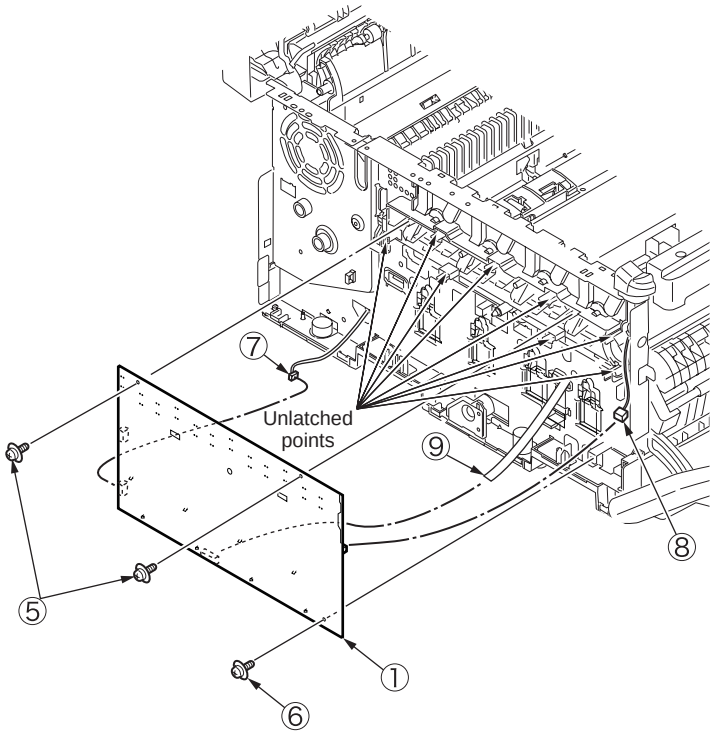
4.2.15 Fan (fuser), high-voltage power supply board, contact Assy., fuser sensor Assy.

(1) Remove the left side cover (see section 4.2.3).

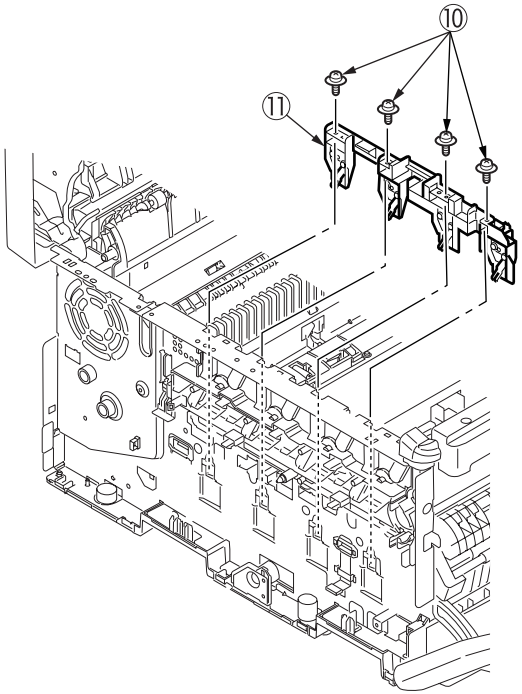
(2) Pull out the connector ② from the high-voltage power supply board ①, and remove the two screws (silver-colored) ③ to detach the fan ④ (tool number 1).



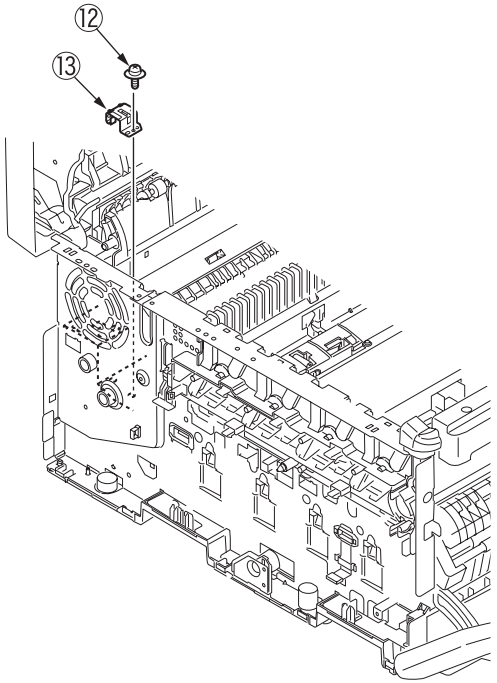
(3) Remove the two screws (black) ⑤ and the screw (silver-colored) ⑥, unlatch the high-voltage power supply board ① at the eight points, remove the belt thermistor connector ⑦, the cover-open sensor connector ⑧ and the FFC connector ⑨ and detach the high-voltage power supply board ① (tool number 1).



(4) Remove the four screws (silver-colored)⑩ to detach the contact Assy.⑪ .



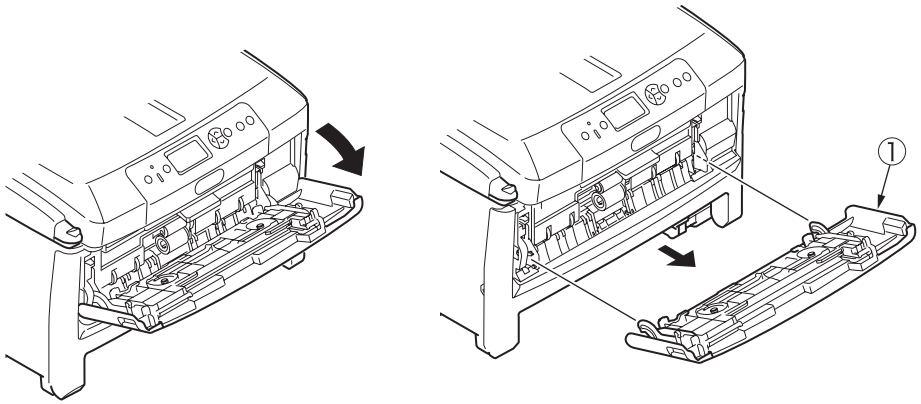
(5) Remove the screw (silver-colored) ⑫ to remove the fuser sensor Assy. ⑬ (tool number 1).



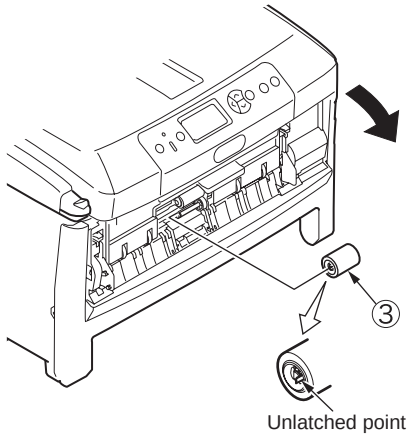
4.2.16 MPT Assy., MPT hopping roller, separator and pick-up roller

(1) Remove the paper cassette.

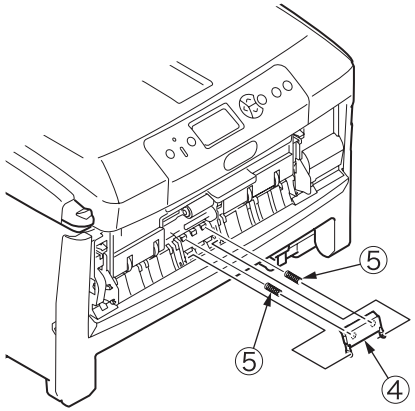
(2) Open the multi-purpose tray, warp and remove the stay on each side and detach the MPT Assy.①.



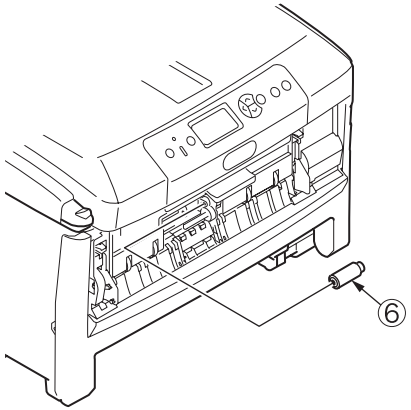
(3) Lift the pick-up Assy. and, bowing the lug of the paper feed roller ③, slide the roller to the left to detach the roller.



(4) Turn the separator Assy. frontward around its two support points to disengage the Assy. at the points to detach the separator④ and the two springs⑤.



(5) Warping the side of the frame, detach the pick-up roller ⑥.



4.2.17 Registration roller Assy.

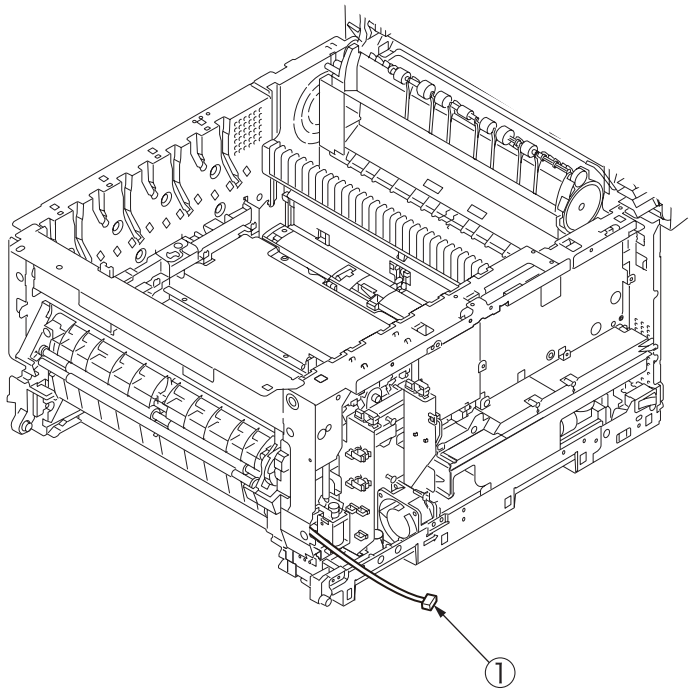
(1) Remove the operator panel Assy. (see section 4.2.11).

(2) Remove the motor (see section 4.2.7, (8)).

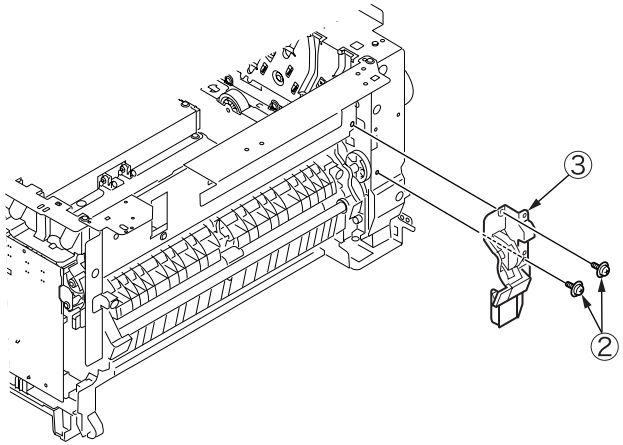
(3) Remove the left side cover (see section 4.2.3).

(4) Remove the MPT Assy. (see section 4.2.16, (2)).

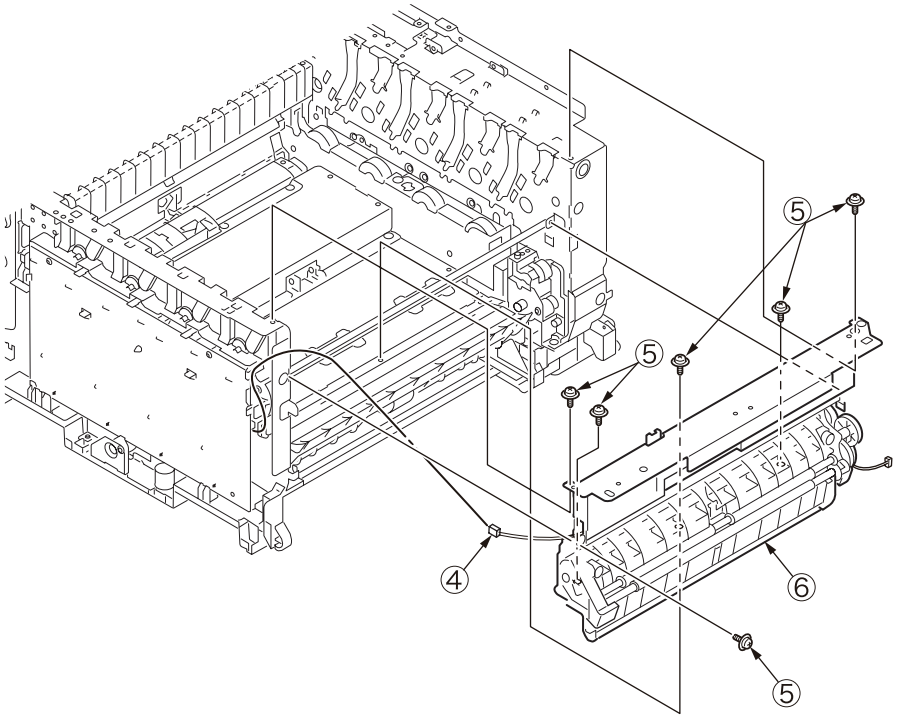
(5) Unplug the cable ①.



(6) Remove the two screws (silver-colored) ② to remove the gear cover ③.



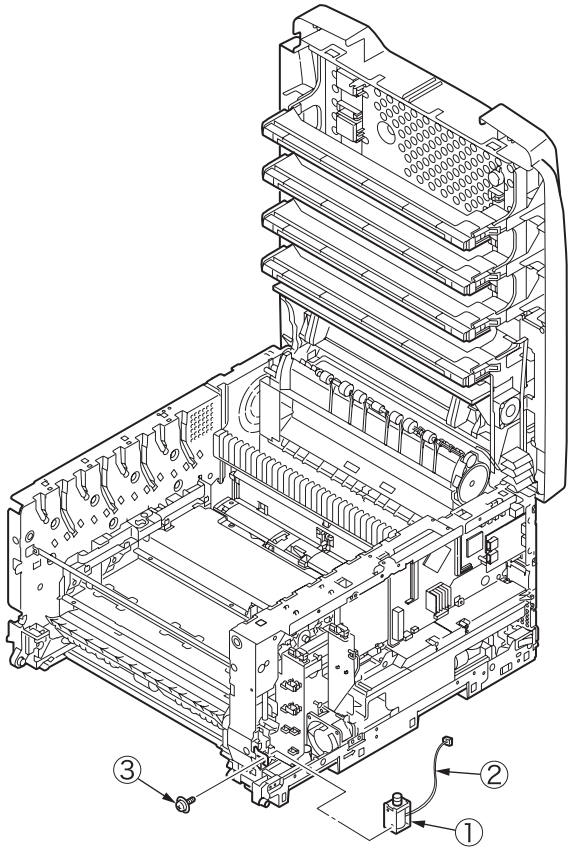
(7) Remove the connector ④ from the high-voltage board, remove the six screws (silver-colored) ⑤ and, as shown, pull out the registration roller Assy ⑥.



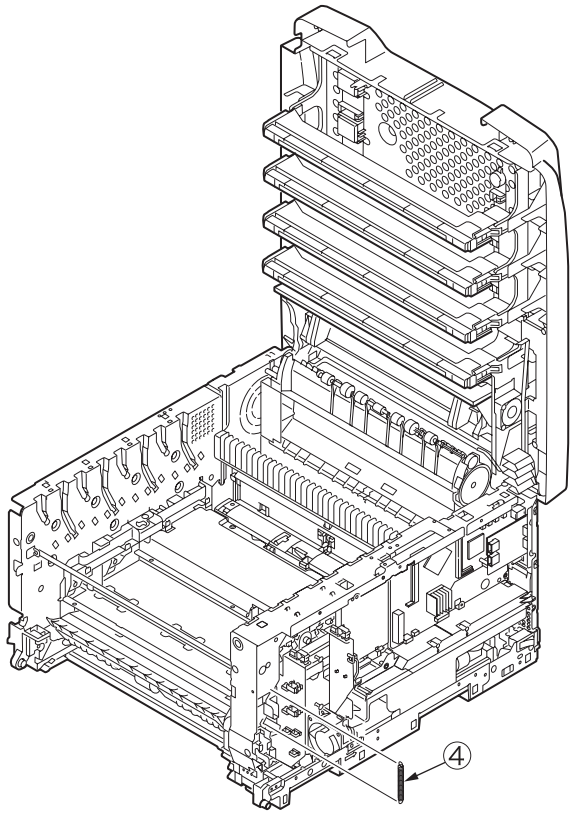
4.2.18 Gear box, registration/hopping roller Assy. and solenoid

(1) Remove the registration roller Assy. (see section 4.2.17).

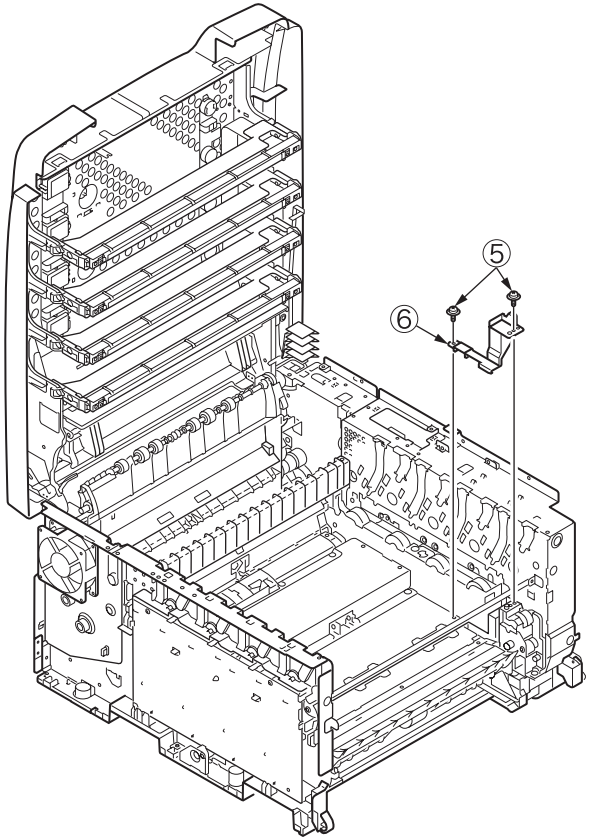
(2) Unclamp the cable ② from the solenoid ① and remove the screw (silver-colored) ③ to detach the solenoid.



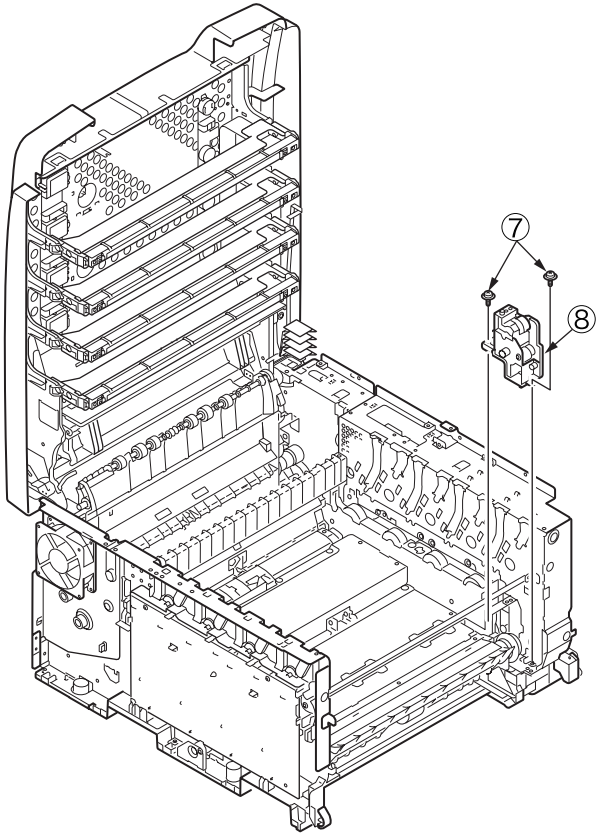
(3) Remove the screw ④.



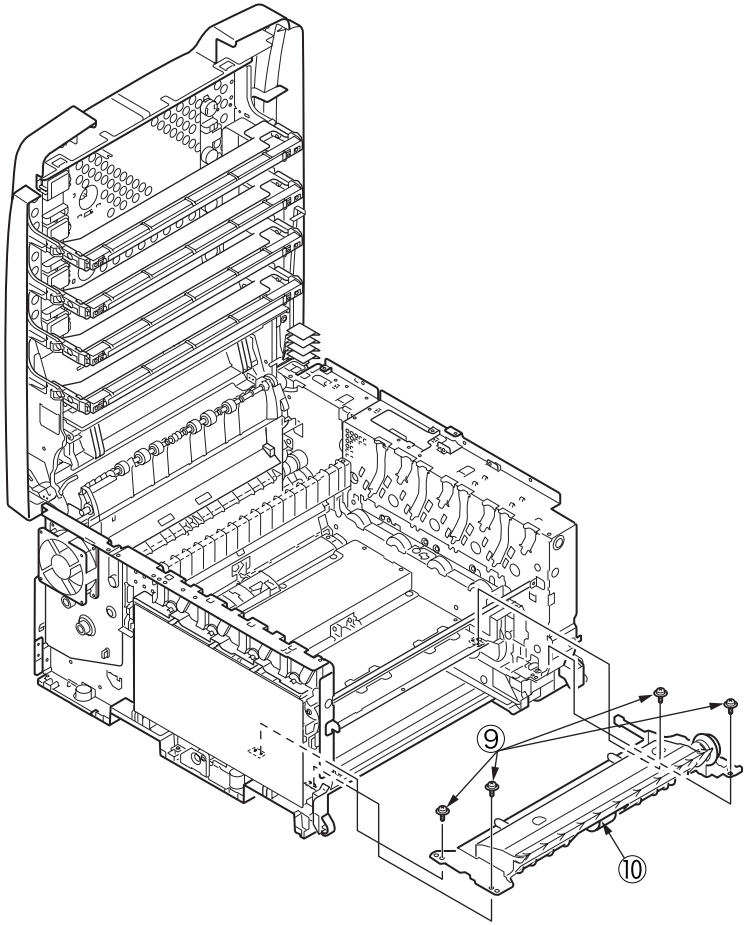
(4) Remove the two screws (silver-colored) ⑤ to remove the cable cover ⑥.



(5) Remove the two screws (silver-colored) ⑦ and lift out the gear box ⑧.



(6) Remove the four screws (silver-colored) ⑨, and pull up the hopping roller Assy. ⑩ toward the front of the printer (tool number 1).



4.2.19 Holder-switch Assy., low-voltage power supply fan and low-voltage power supply

⚠Warning	Electric shock hazard.	⚡

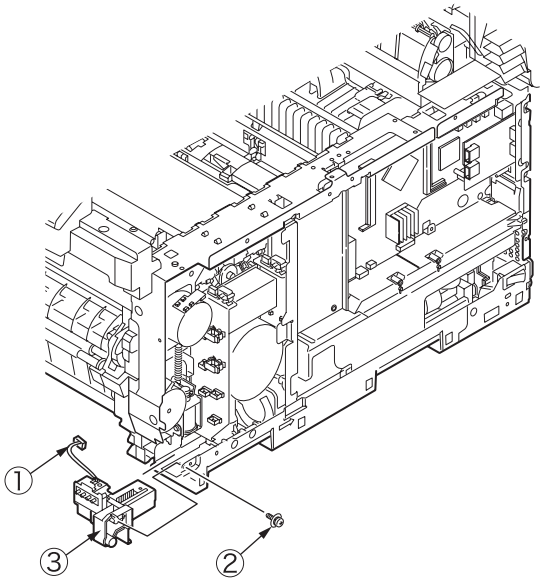
When replacing the low-voltage power supply, due to potential electric shock, wear insulated gloves or be careful not to touch the conductors or terminals of the power supply directly.

After the AC cord is unplugged, the capacitor may take about one minute to discharge completely, or could not discharge due to PCB breakdown. Use caution about electric shock.

(1) Remove the plate shield Assy. (see section 4,2,7, (1) to (3)).

(2) Remove the MPT Assy. (see section 4.2.16, (2)).

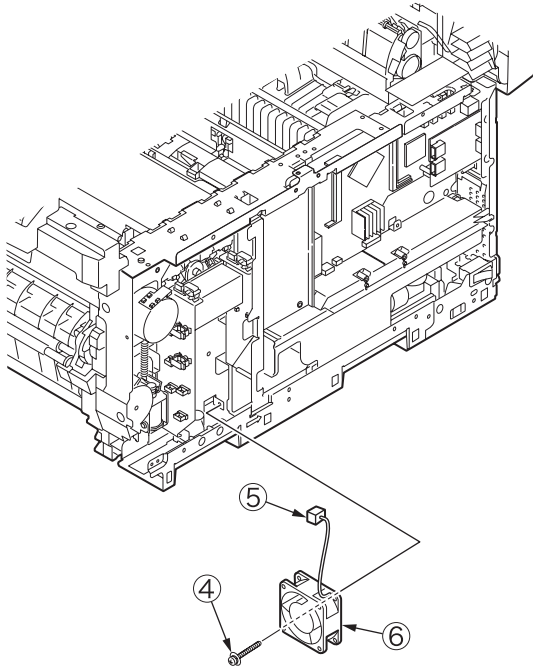
(3) Remove the connector ① and the screw (black) ② to detach the holder-switch Assy ③.



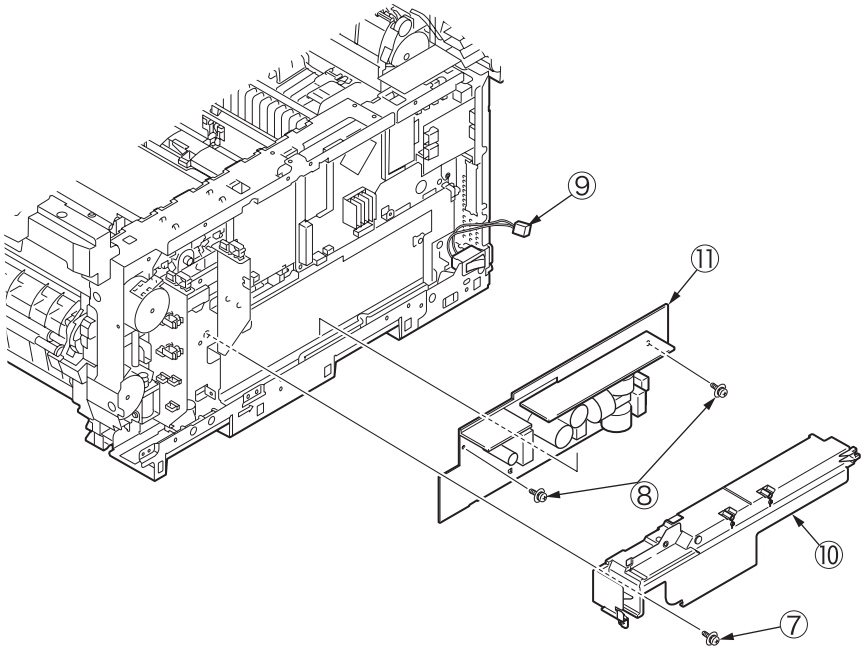
(4) Remove the image drum motor (see section 4.2.7, (6)).

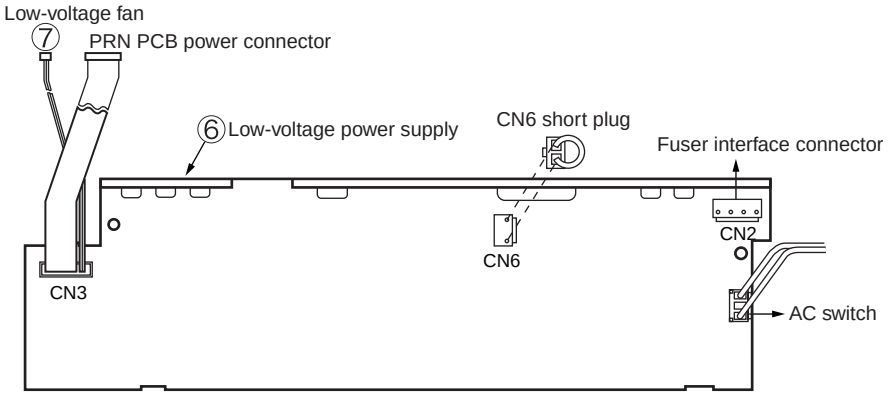
(5) Remove the reinforcement plate (see section 4.2.8, (2)).

(6) Remove the screw (silver-colored) ④ and the connector ⑤ to detach the low-voltage power supply fan ⑥.



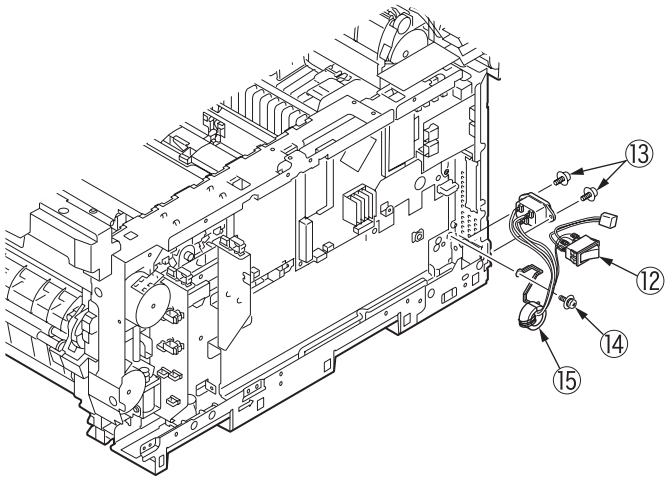
(7) Remove the screw (silver-colored) ⑦, the two screws (silver-colored) ⑧, the AC cord connector ⑨ and the power supply cover ⑩ to detach the low-voltage power supply ⑪.





Note! CN6: AC input voltage setting switch connector
100V short plug contained but 230V short plug not contained.

(8) Remove the AC switch ⑫, the two screws (silver-colored) ⑬, the ground screw ⑭ and the AC power supply cable ⑮.

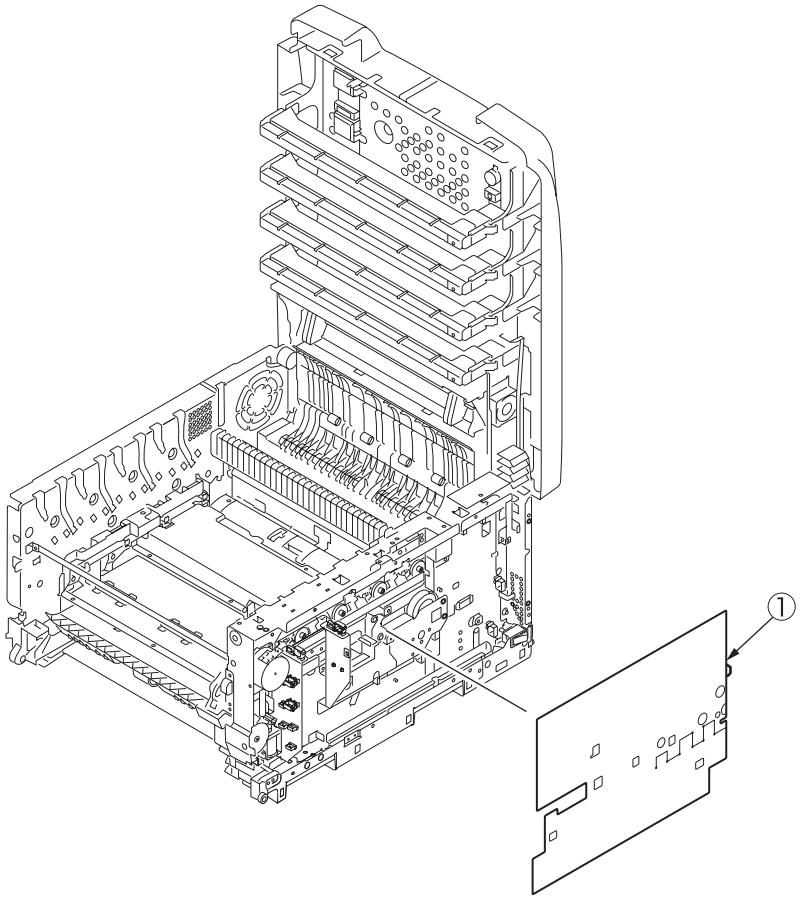


4.2.20 Belt motor Assy. and fuser motor Assy.

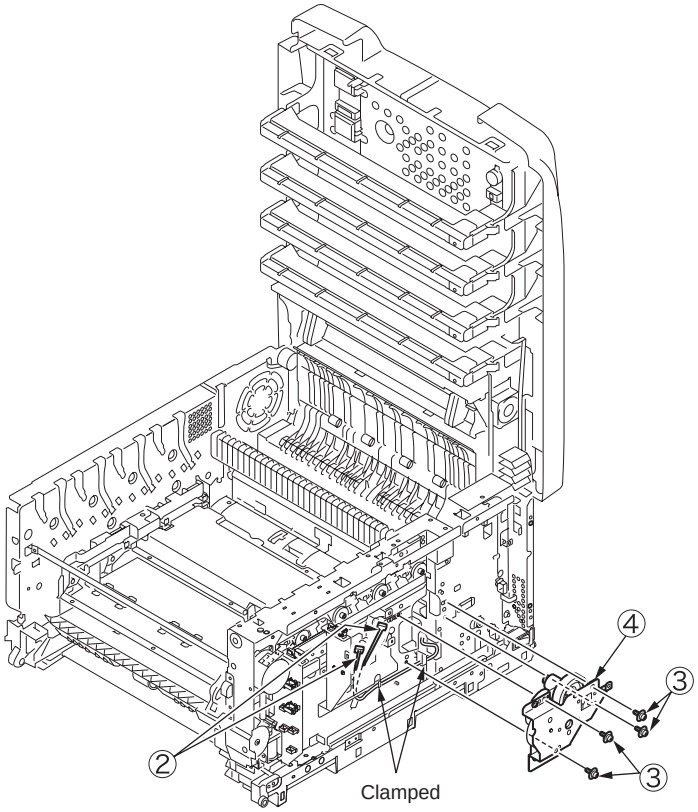
(1) Remove the main control PCB, print engine roller PCB (see sections 4.2.7 and 4.2.8).

(2) Remove the low-voltage power supply (see section 4.2.19, (7)).

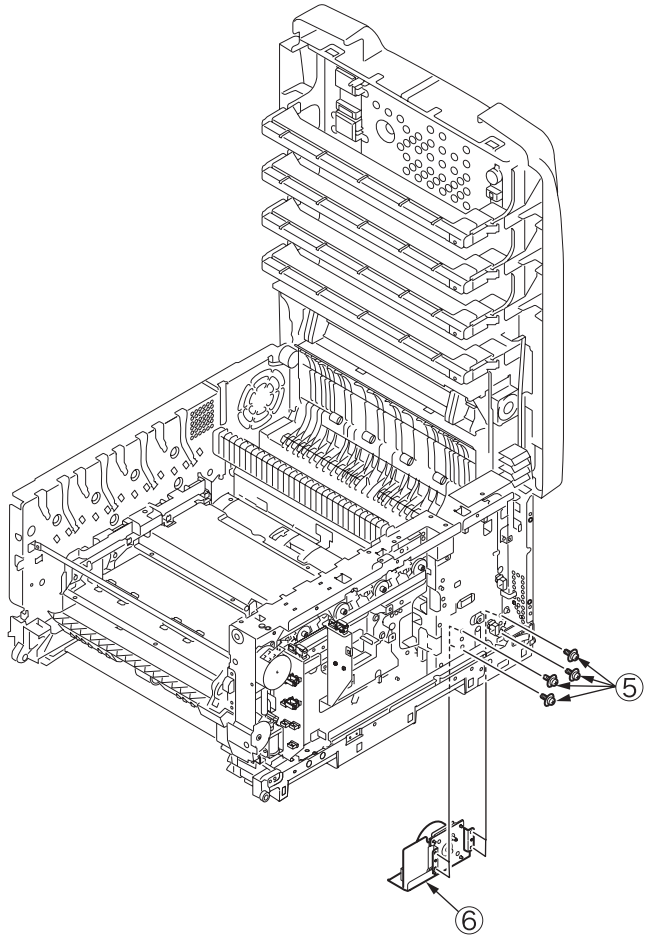
(3) Remove the insulator ①.



(4) Unclamp the two cables ② and, to detach the belt motor Assy. ④ remove the four screws (silver-colored) ③ of which brackets are marked with a number 2 in a rectangle (2).



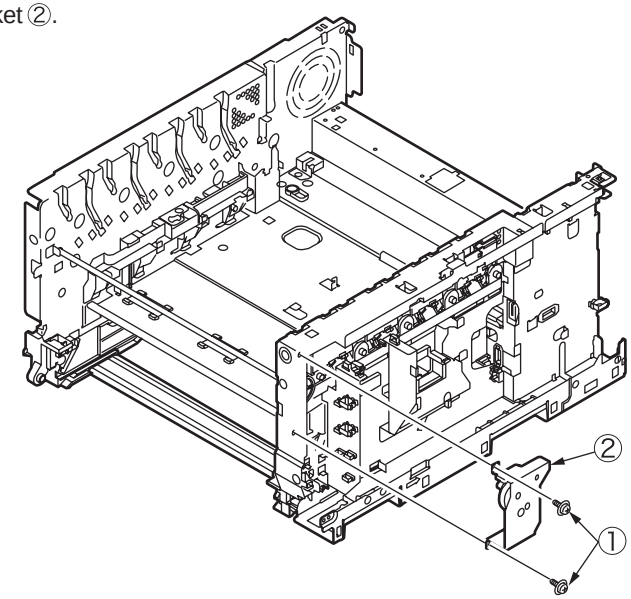
(5) Remove the four screws (silver-colored)⑤ to detach the fuser motor Assy.⑥ .



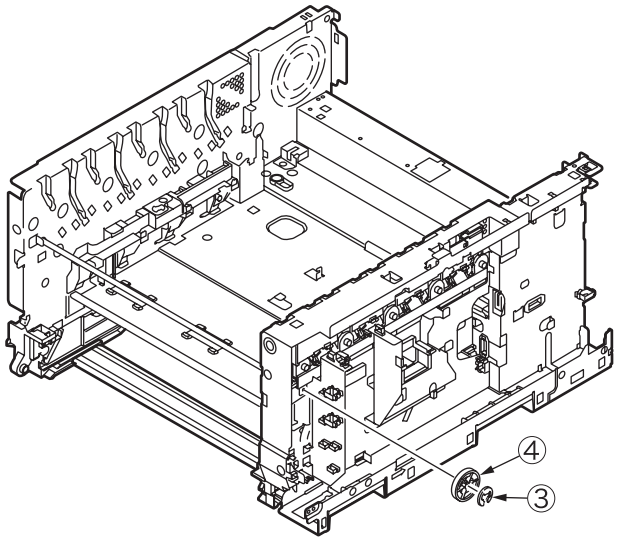
4.2.21 Side-R Assy. and side-L Assy.

(1) See sections 4.2.1 to 4.2.20.

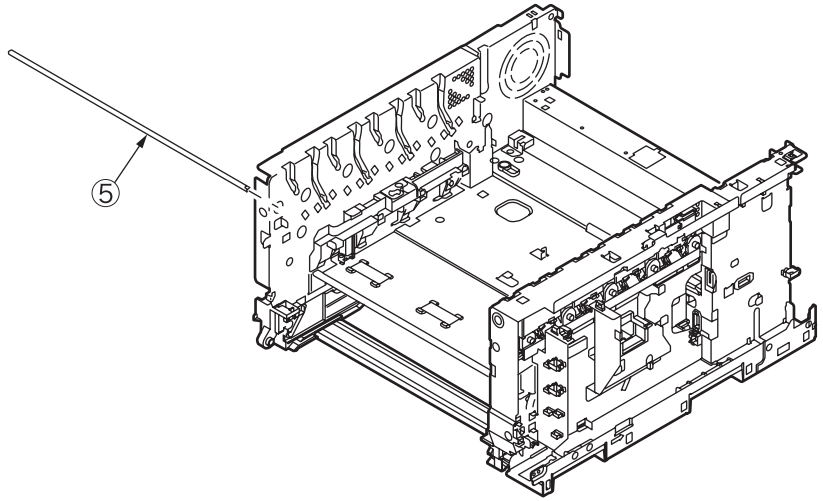
(2) Remove the two screws (silver-colored) ① to remove the image drum lift-up gear bracket ②.



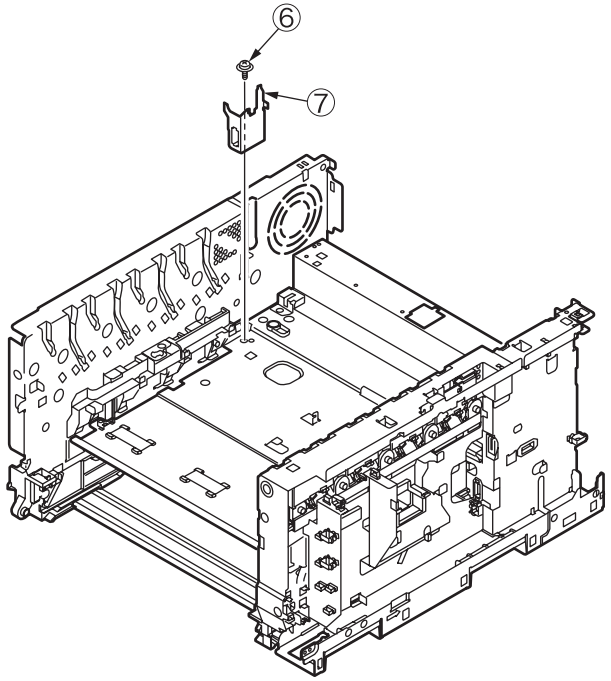
(3) Remove the E-shaped ring ③ and the image drum lift-up gear (R) ④ (tool number 8).



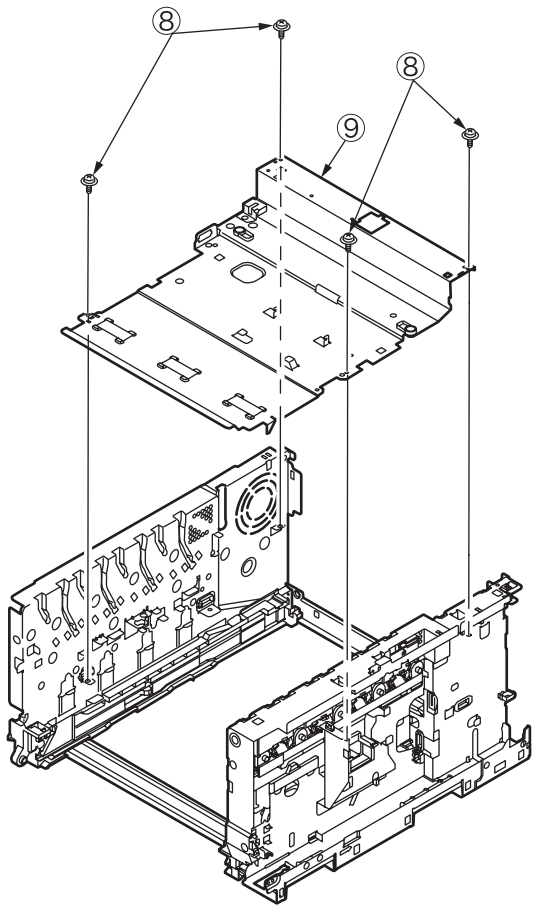
(4) Pull out the shaft ⑤ leftward.



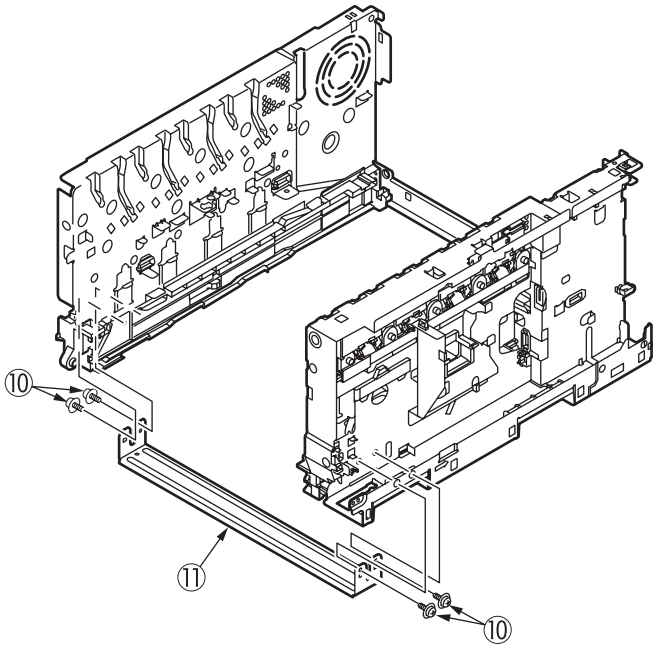
(5) Remove the screw (silver-colored) ⑥ to remove the belt bracket ⑦.



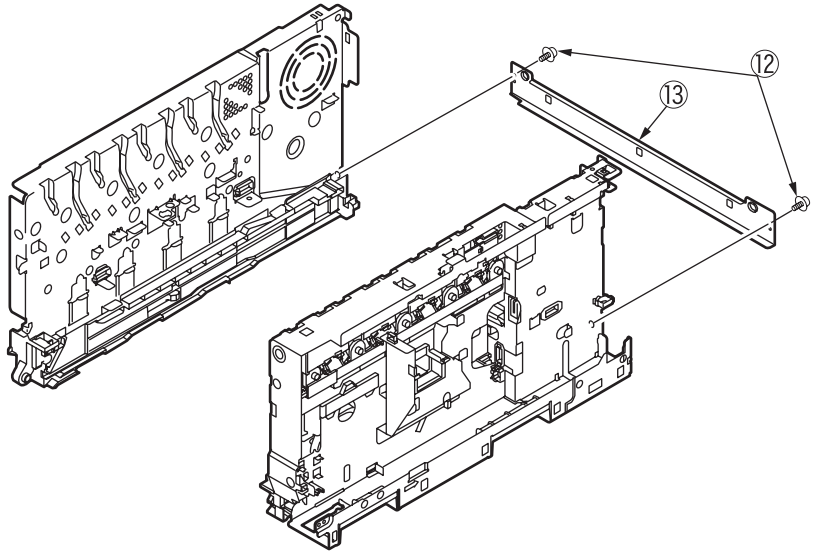
(6) Remove the four screws (silver-colored) ⑧ to remove the base plate ⑨.



(7) Remove the four screws (silver-colored) ⑩ to remove the plate beam ⑪.



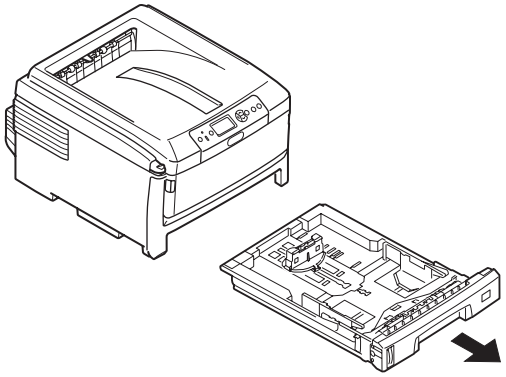
(8) Remove the two screws (silver-colored) ⑫ to remove the plate-beam-rear ⑬. The side L Assy. ⑭ and the side R Assy. ⑮ become detached.



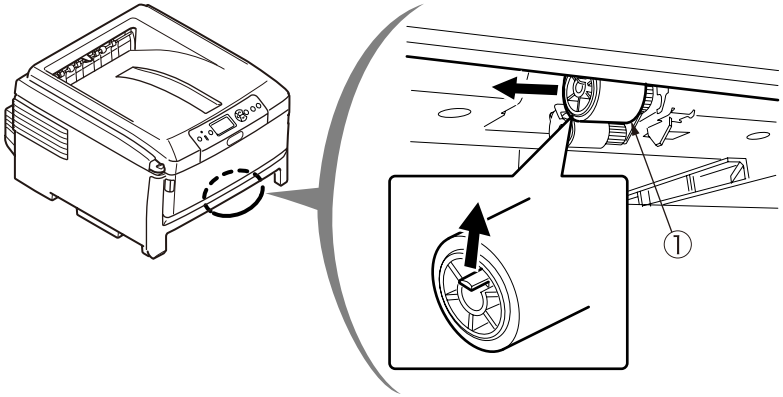
4.2.22 Paper feed roller (tray 1)

Note! When replacing the paper feed roller of the tray 1, be sure to replace the separator of the tray 1.

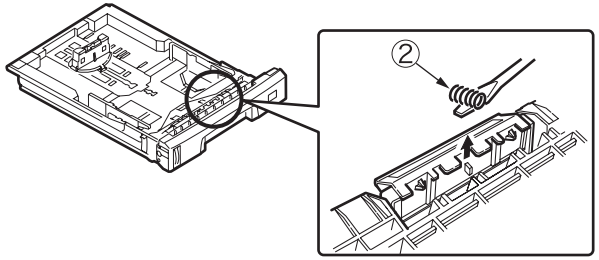
(1) Turn off the printer and remove the paper cassette of the tray 1.



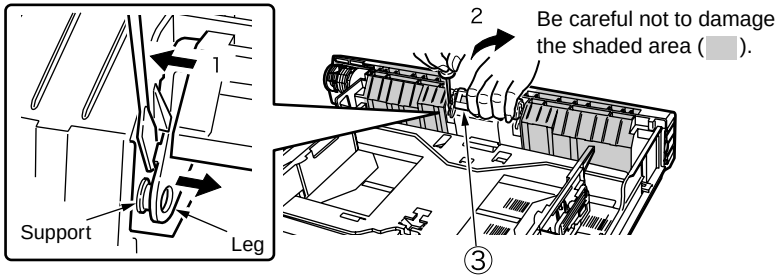
(2) Pressing the protrusion of the paper feed roller (large) ① outward, detach the roller from its shaft.



(3) Remove the spring ② from the paper cassette.

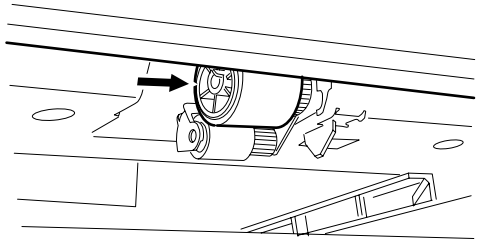


(4) Warping the separator ③ until its one leg is removed out of the support of the leg, detach the separator ③.



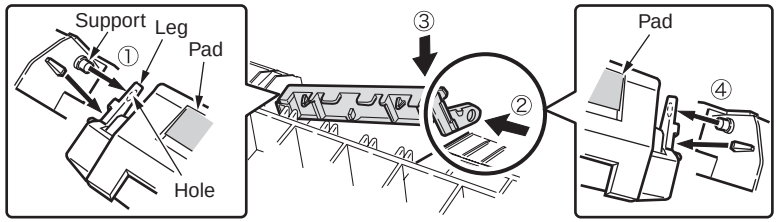
Notes on attaching paper feed roller:

1. To attach a new paper feed roller, insert it onto the shaft and turn it all the way. After attaching the roller, make sure it is not removed out of the shaft.



Notes on attaching separator:

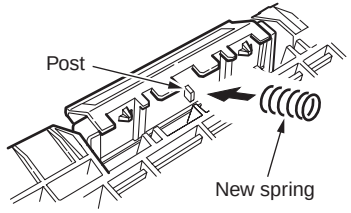
1. Insert the hole of one leg of a new separator onto the support of the leg and, bending the other leg, push the separator from above so as to insert the other support into the hole of the other leg. Be careful not to touch the pad (rubber) during this operation.



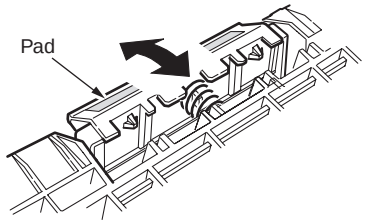
2. Make sure the supports are put in the holes of the legs.

3. Insert a new spring onto the post of the separator to attach it.

Note! • Be careful not to allow the spring to jump.
• The removed spring can be used.



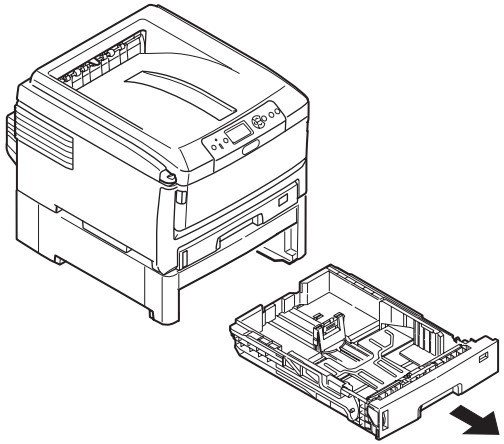
4. Be sure the separator turns smoothly around the supports. Be careful not to touch the pad (rubber) during this operation.



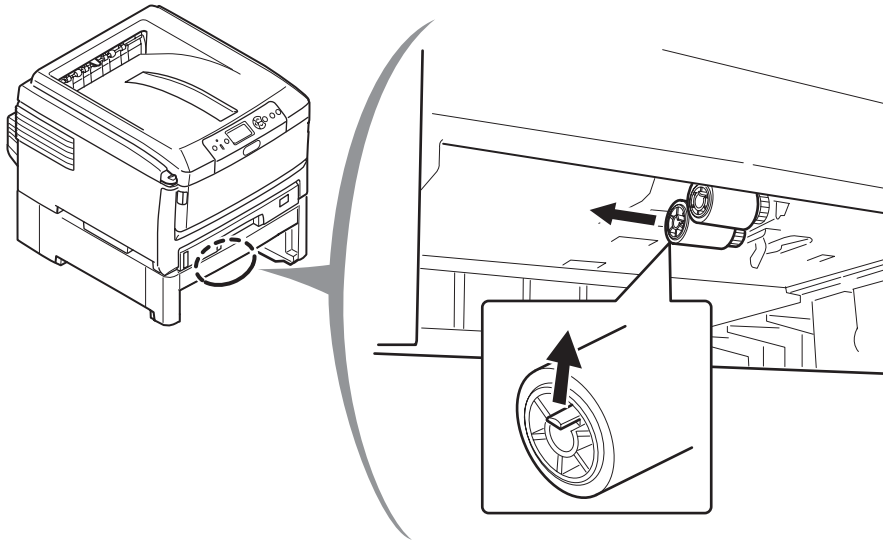
4.2.23 Paper feed rollers (tray 2/3 (option))

Note! Be sure to replace all of the three paper feed rollers.

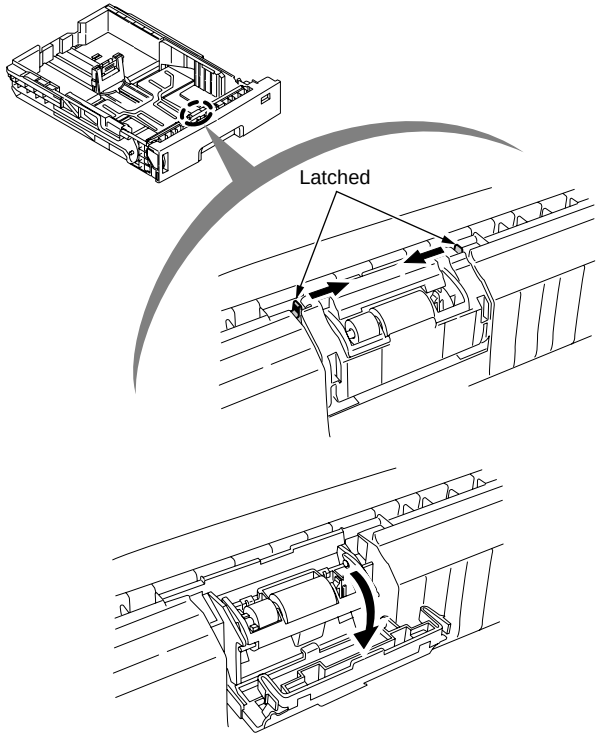
(1) Turn off the printer and remove the paper cassette of the tray 2/3.



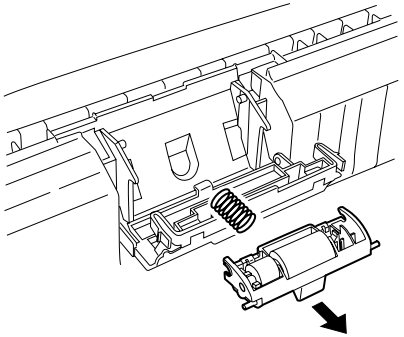
(2) Pressing the protrusions of the two paper feed rollers outward, detach them from their shafts.



(3) Warp the protrusion on each side of the cover on the paper cassette to unlatch the cover and, turning the cover toward the front of the printer, remove the cover.

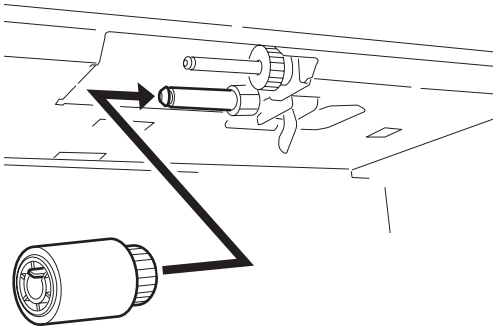


(4) Pull the retard roller Assy. in the direction of the arrow out of its shaft.

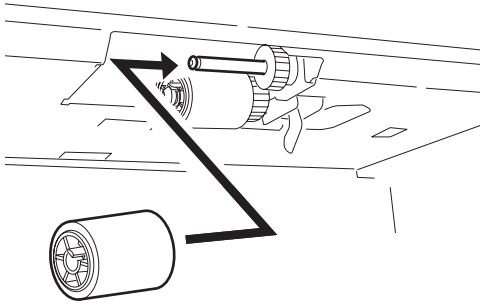


Notes on attaching paper feed rollers:

1. Insert a new paper feed roller (with a gear) onto the inside shaft and turn it all the way in place.

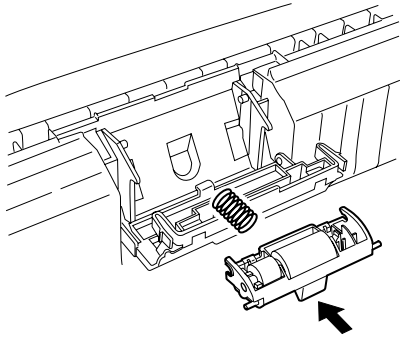


2. Insert a new paper feed roller (with no gears) onto the outside shaft and turn all the way in place. Be sure the rollers are not removed.

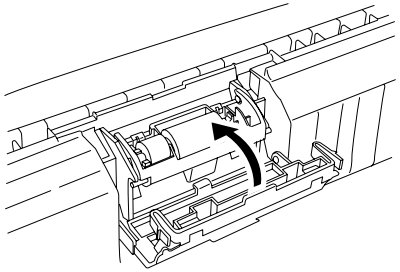


Notes on attaching retard roller Assy.:

1. Put the spring onto the boss on the rear of a retard roller Assy., and push the bearing of the Assy. obliquely from below onto the shaft on the side of the cassette.

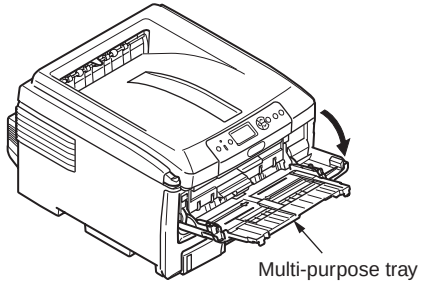


2. Be sure that the retard roller Assy. moves smoothly around the shaft and the roller turns.

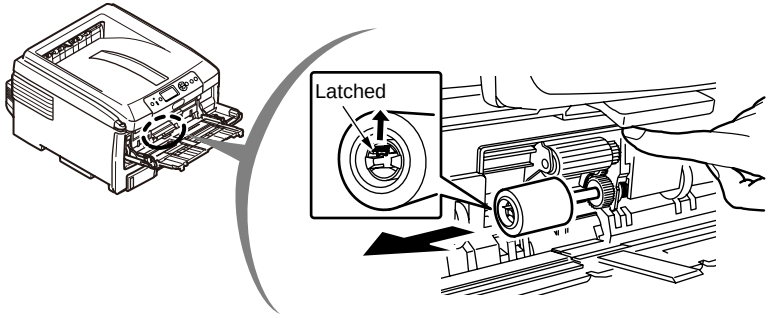


4.2.24 Paper feed roller (multi-purpose tray)

(1) Turn off the printer and open the multi-purpose tray.

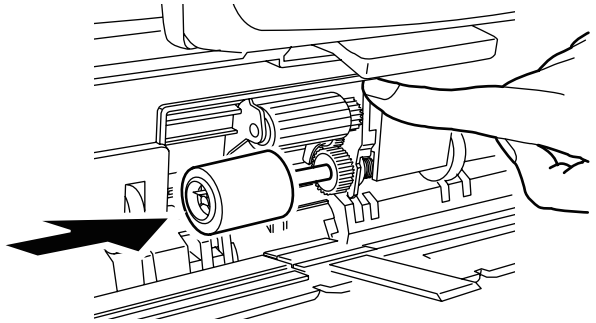


(2) Lift the paper pick-up section and, pressing the protrusion of the paper feed roller of the multi-purpose tray outward, remove the from its shaft.



Notes on attaching paper feed roller:

1. To attach a new paper feed roller, insert it onto the shaft and turn it all the way. After attaching the roller, make sure it is not removed out of the shaft.



4.3 Portions Lubricated

Portions lubricated are shown in this section. The other portions must not be lubricated. Lubrication is not required during assembly or disassembly, except that the lubricant specified must be applied to portions from which lubricant was wiped.

Lubrication

(1) Lubricant names and their abbreviations

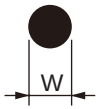
EM-30L: Molykote EM-30L

HP-300: Molykote HP-300

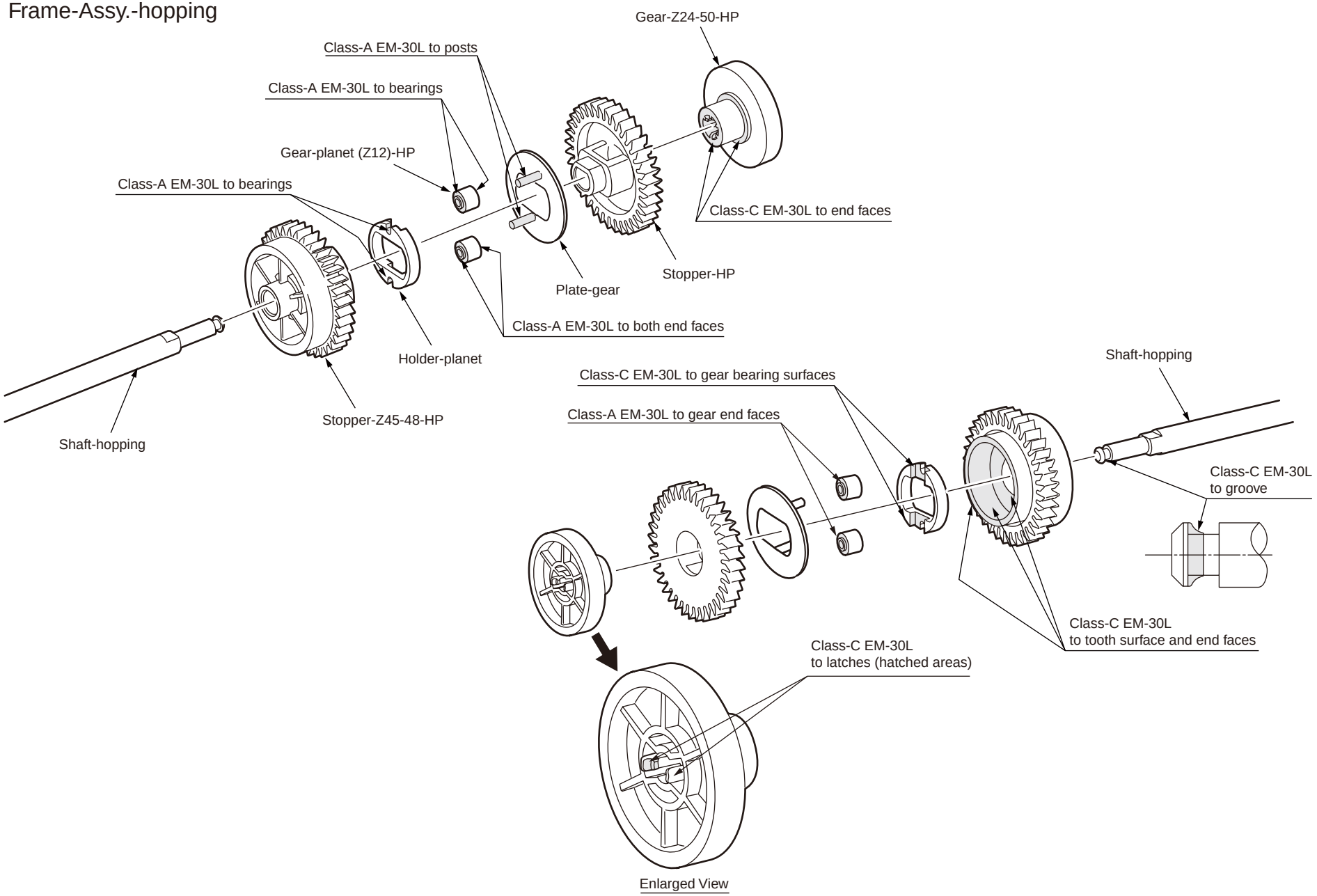
PM: Pan motor oil 10W-40 or ZOA 10W-30

(2) Grease boundary samples

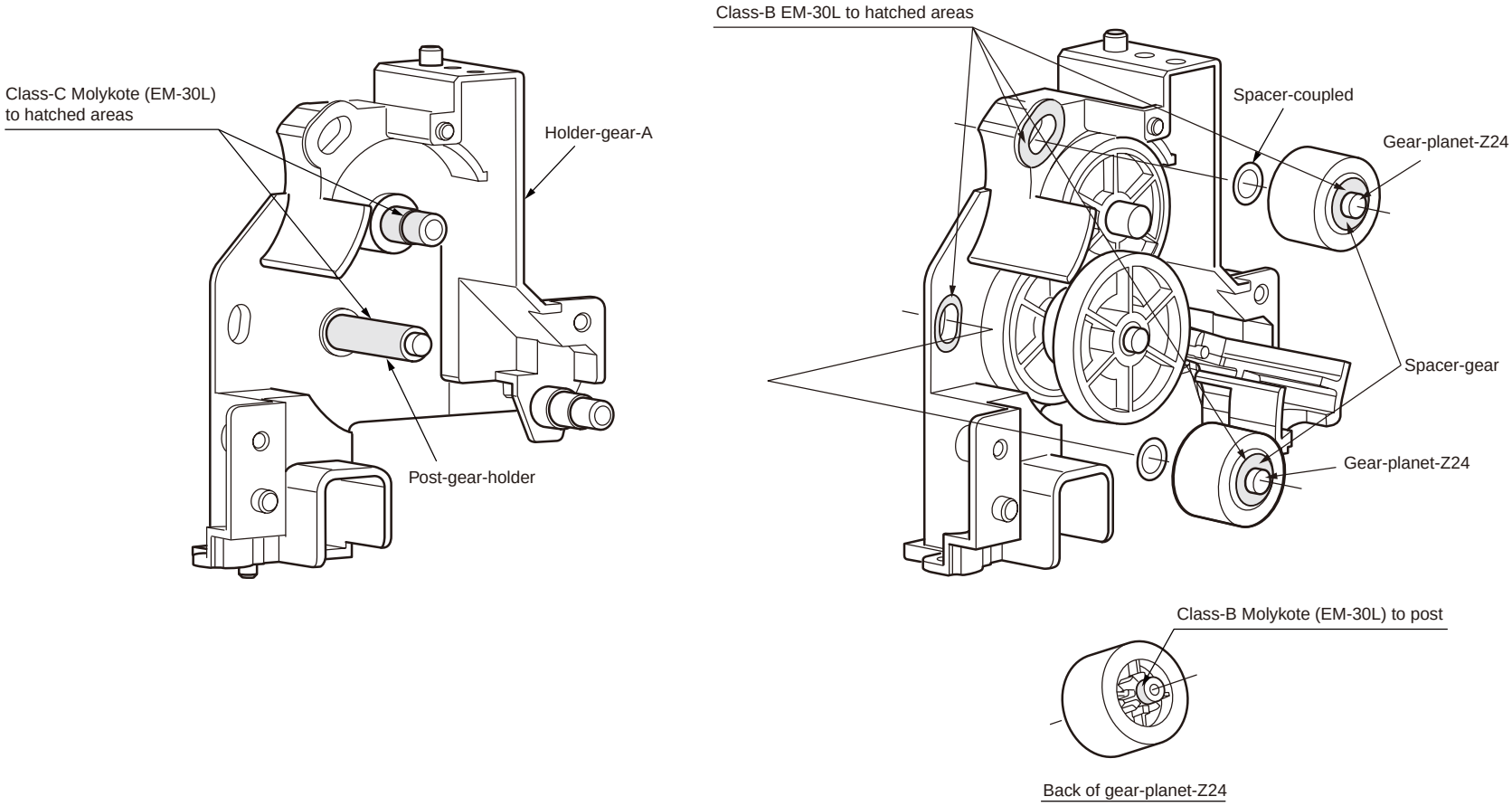
Class	S	A	B	C	D	E	F
Amount Applied (cc)	0.0005	0.003	0.005	0.01	0.03	0.05	0.1
Width (mm)	1.24	2.25	2.67	3.37	4.86	5.76	7.26
Sample							



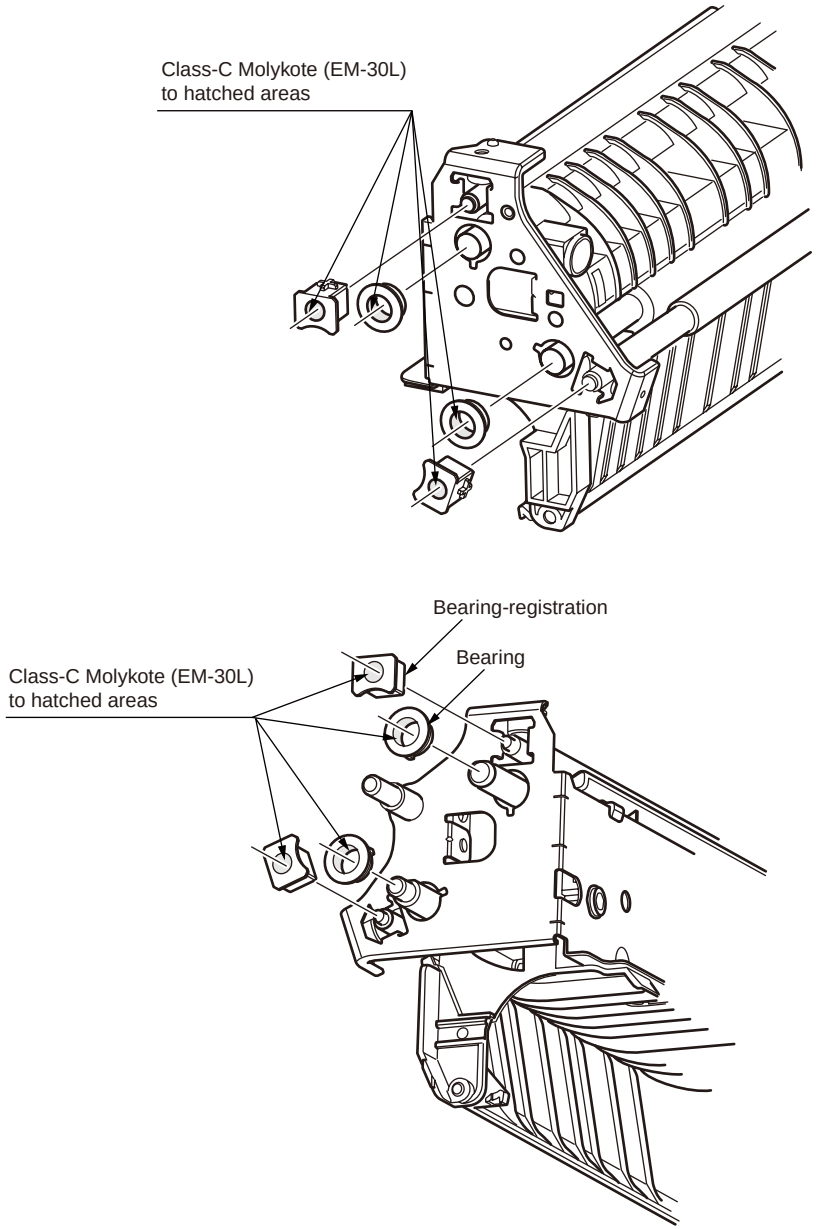
① Frame-Assy.-hopping



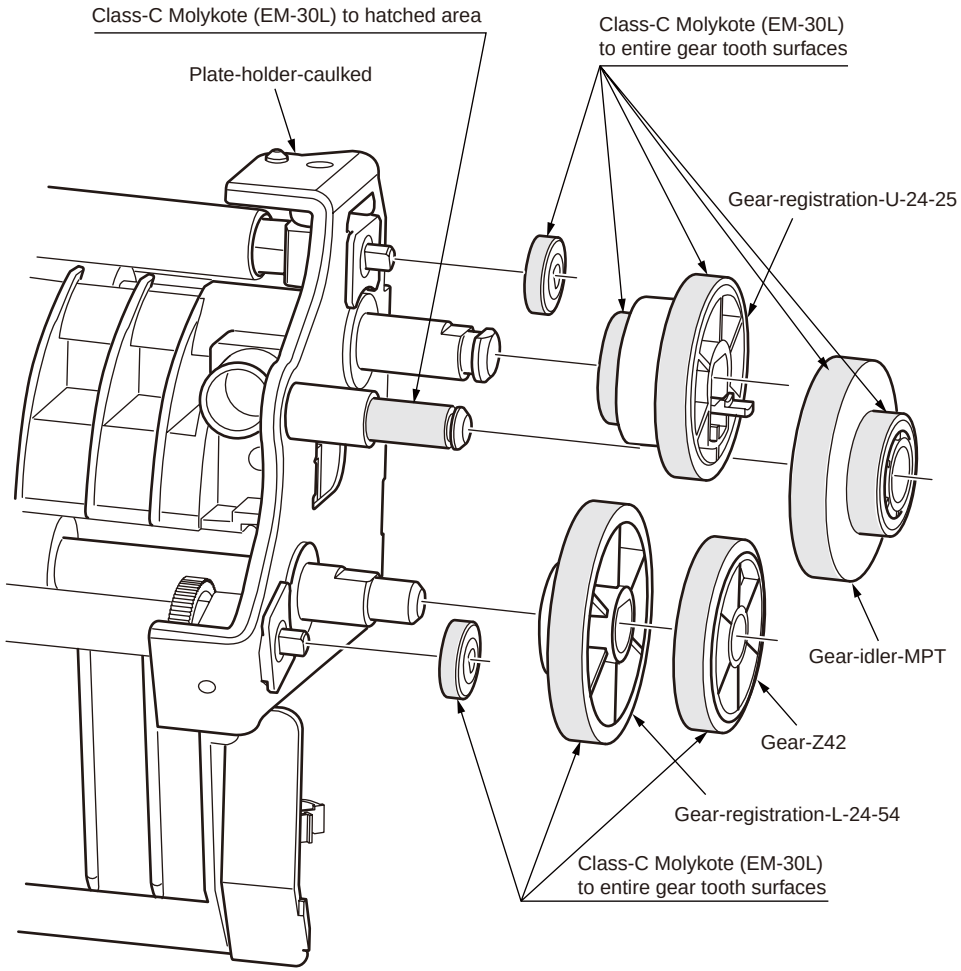
② Gear-holder-Assy.



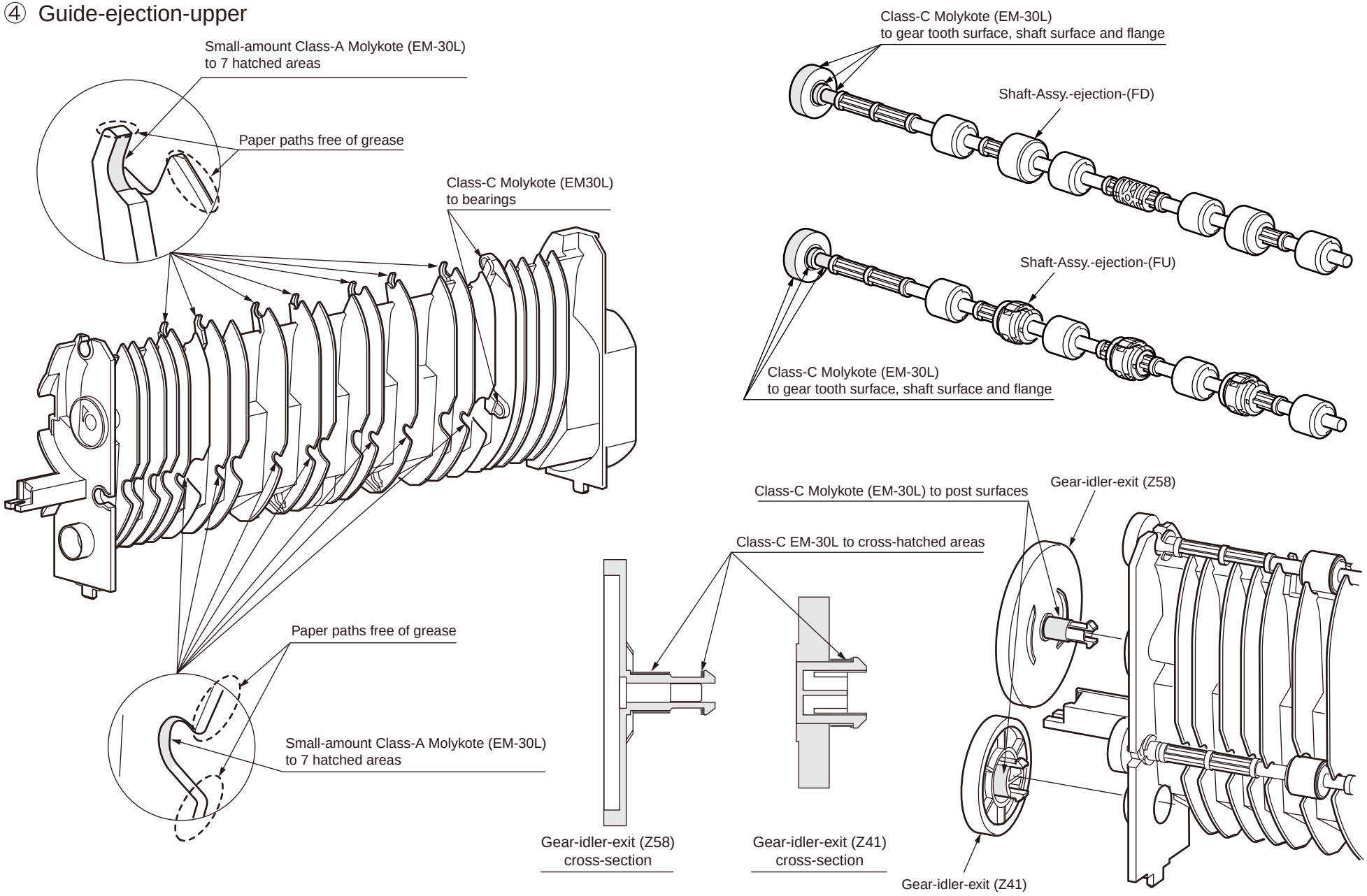
③-1 Roller-Assy.-registration (lower)



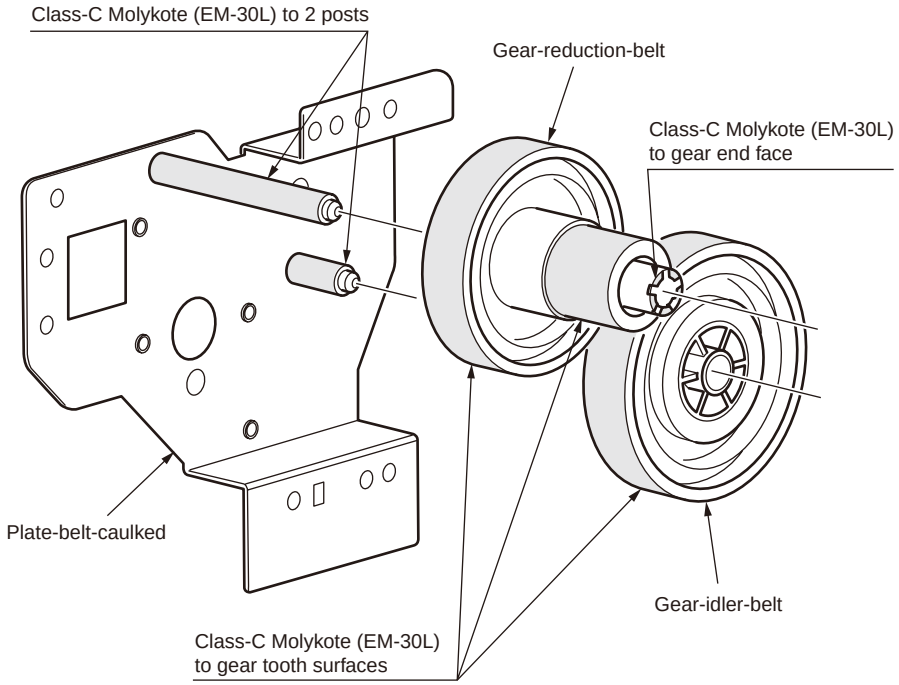
③-2 Roller-Assy.-registration (lower)



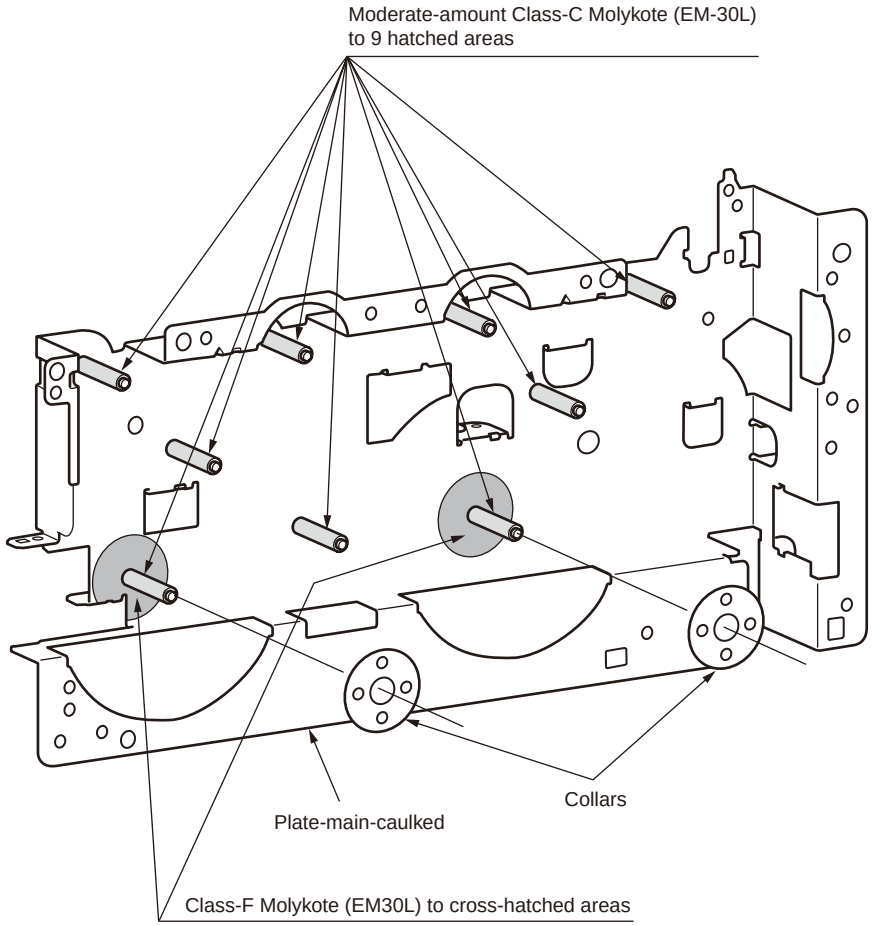
④ Guide-ejection-upper



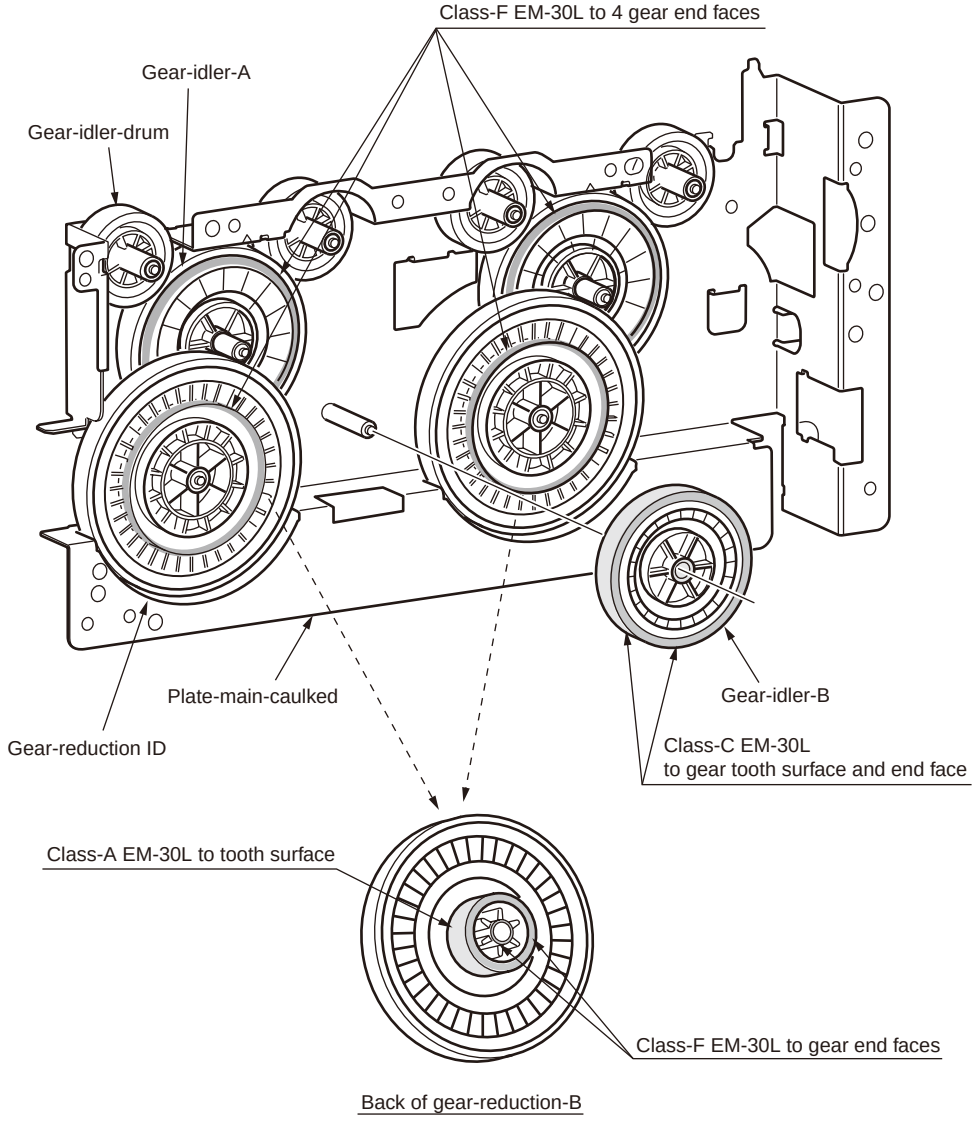
⑤ Motor-Assy.-belt

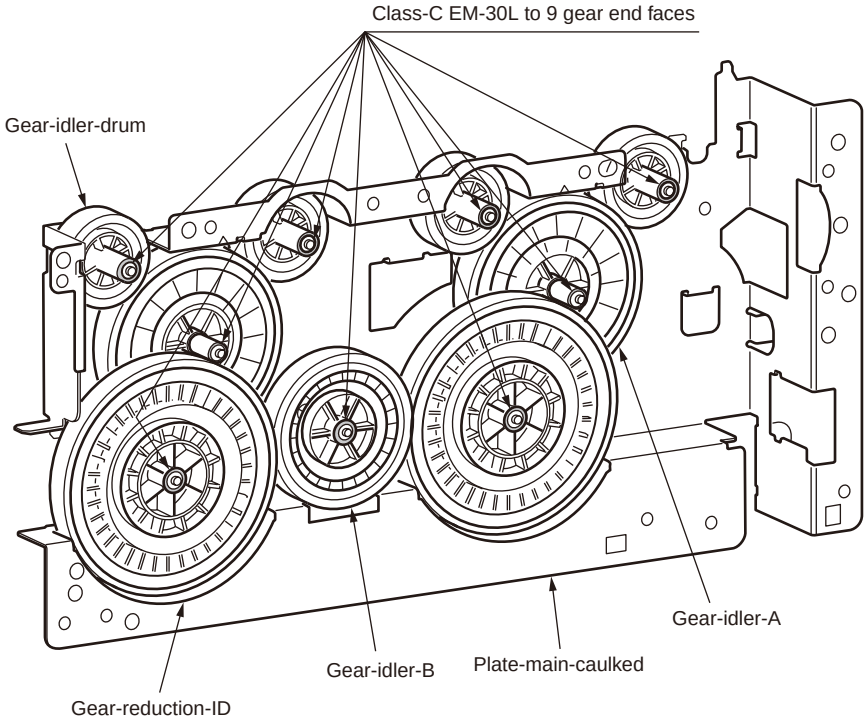


⑥-1 Plate-main-Assy.

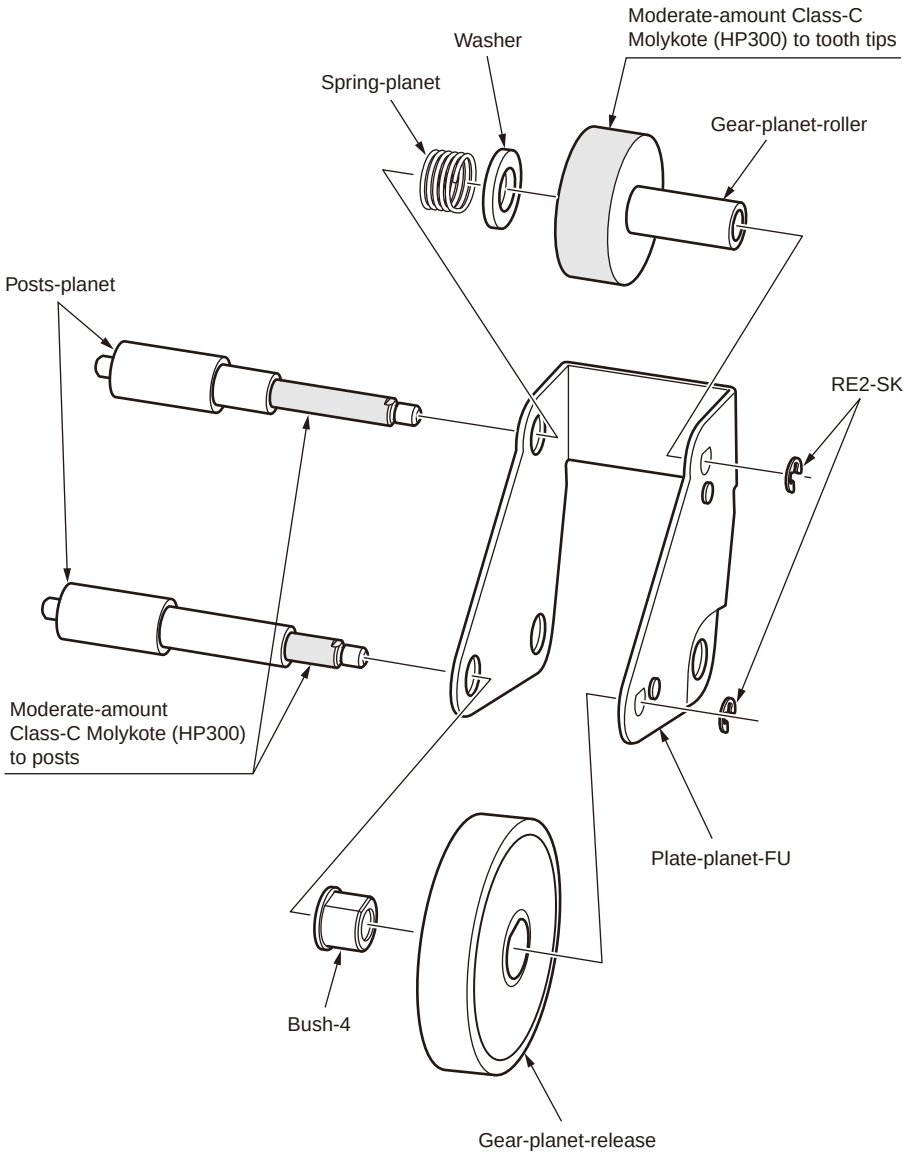


⑥-2 Plate-main-Assy.

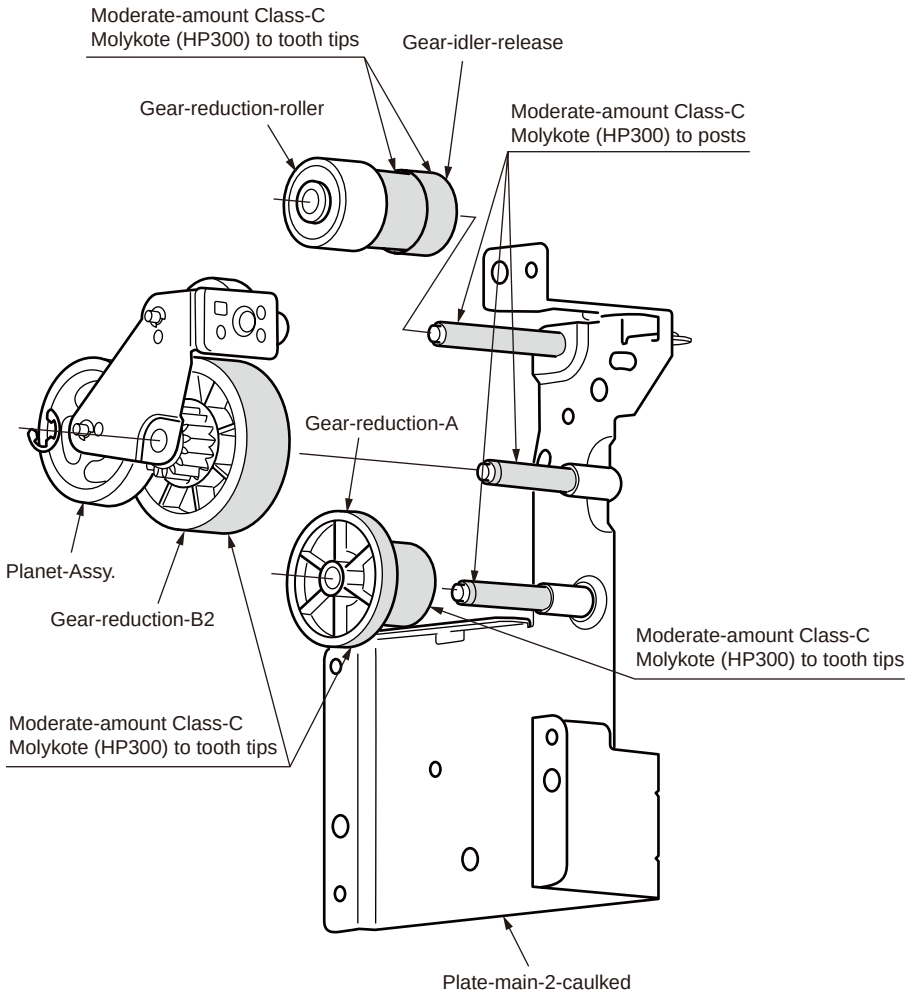




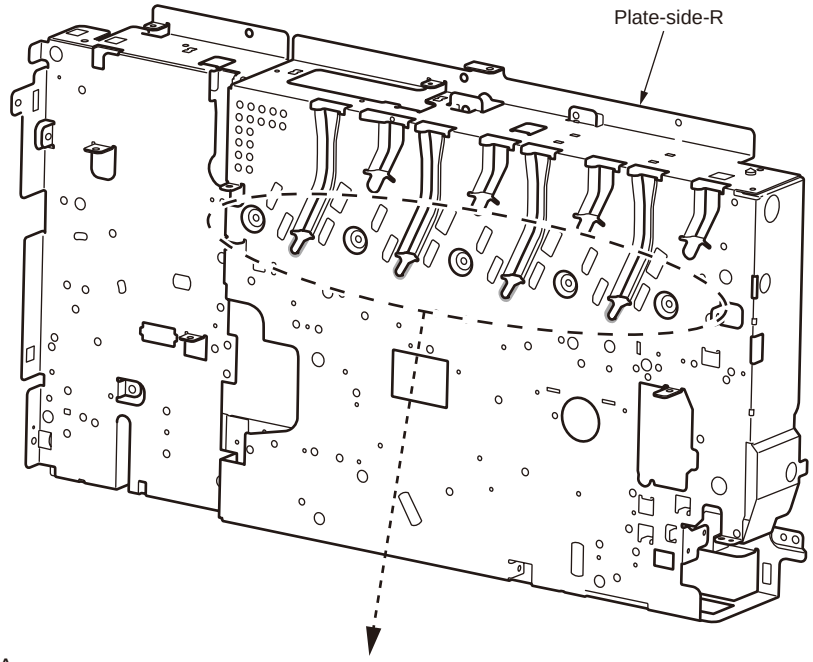
⑦ Planet-Assy.



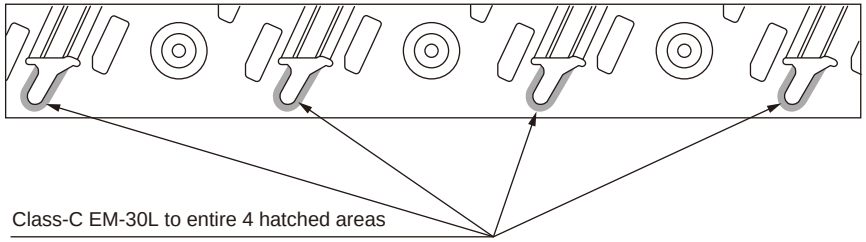
⑧ Plate-main-2-Assy.



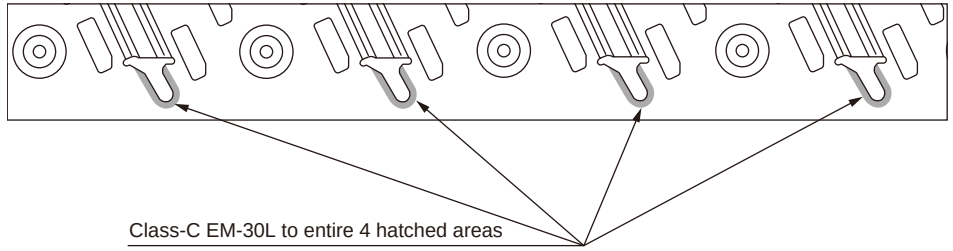
⑨-1 Plate-side-R-Assy.



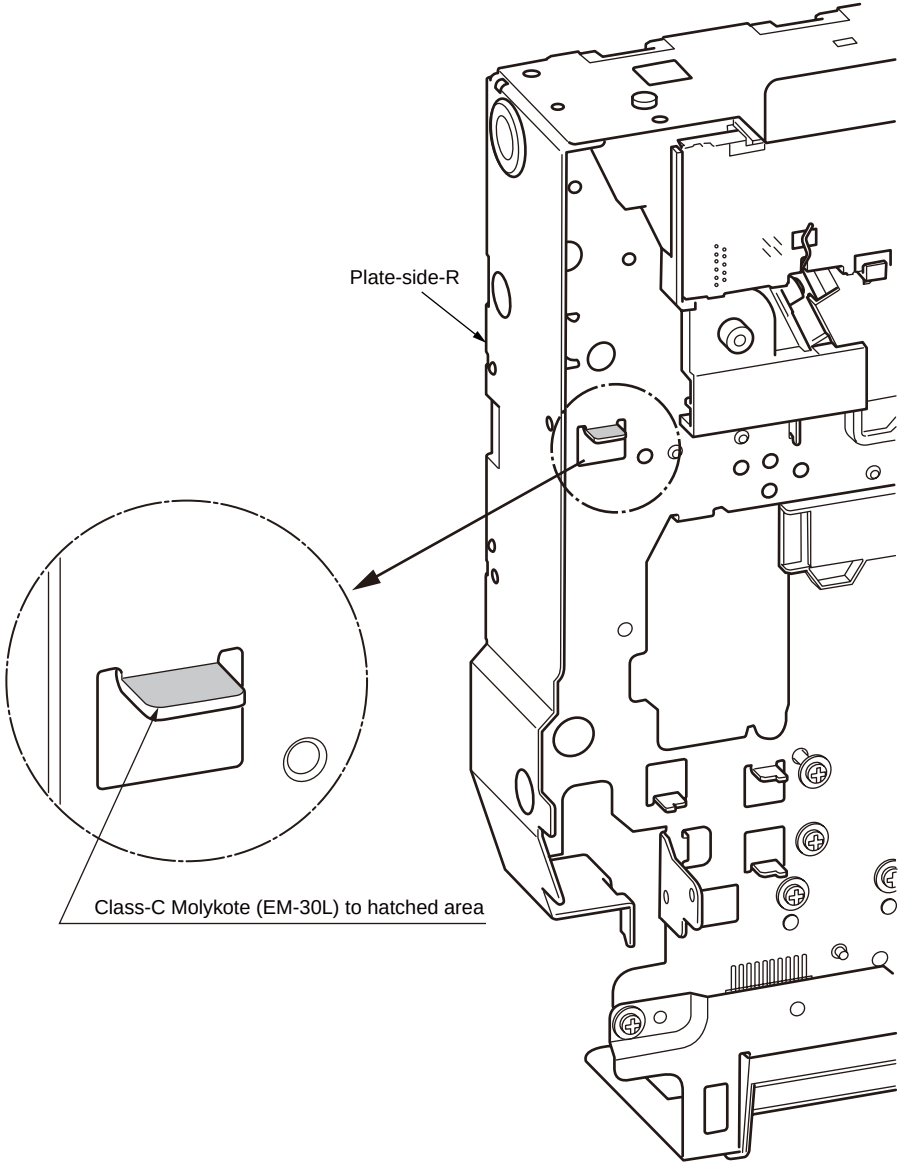
View A



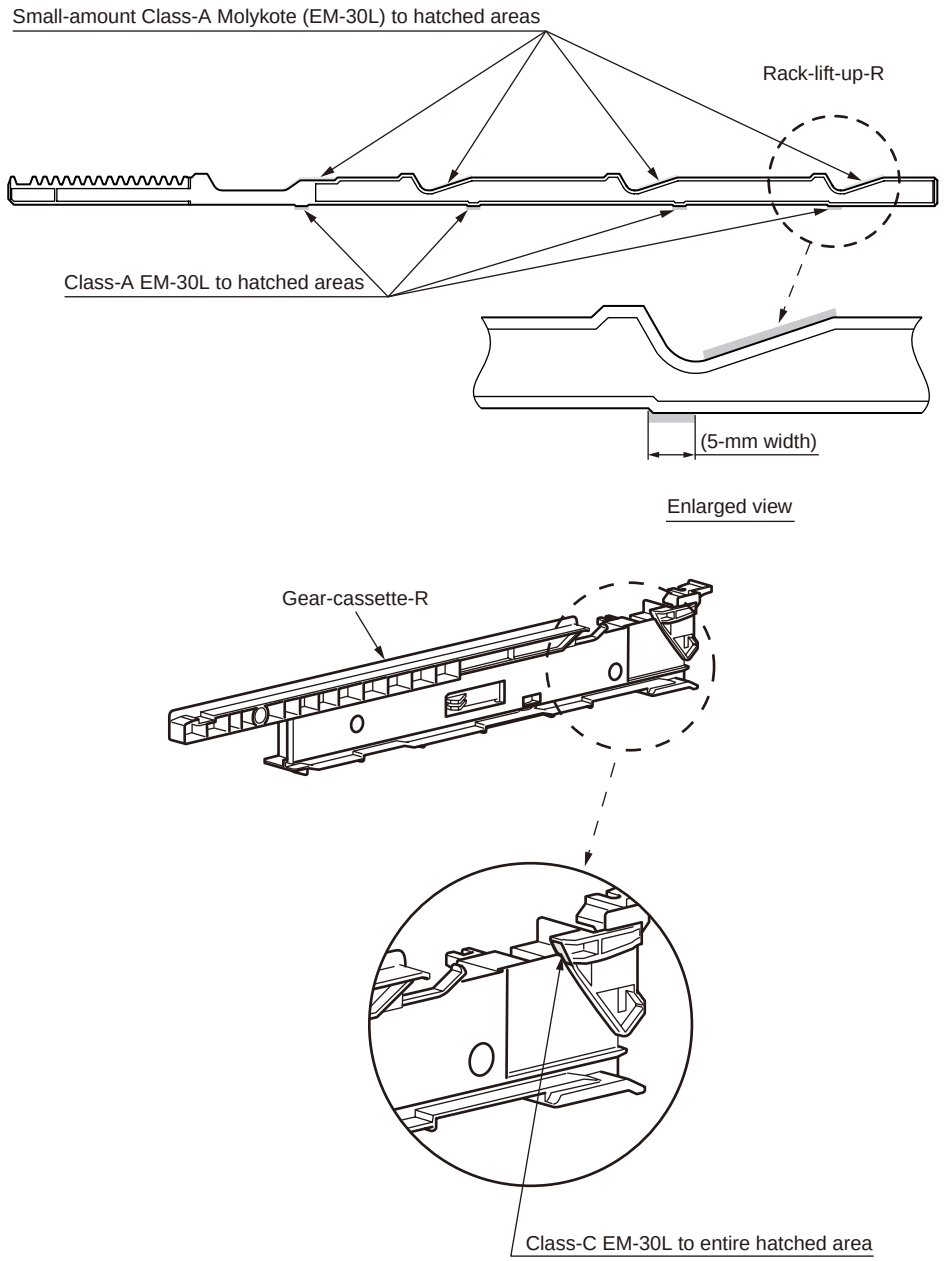
Back of A-View



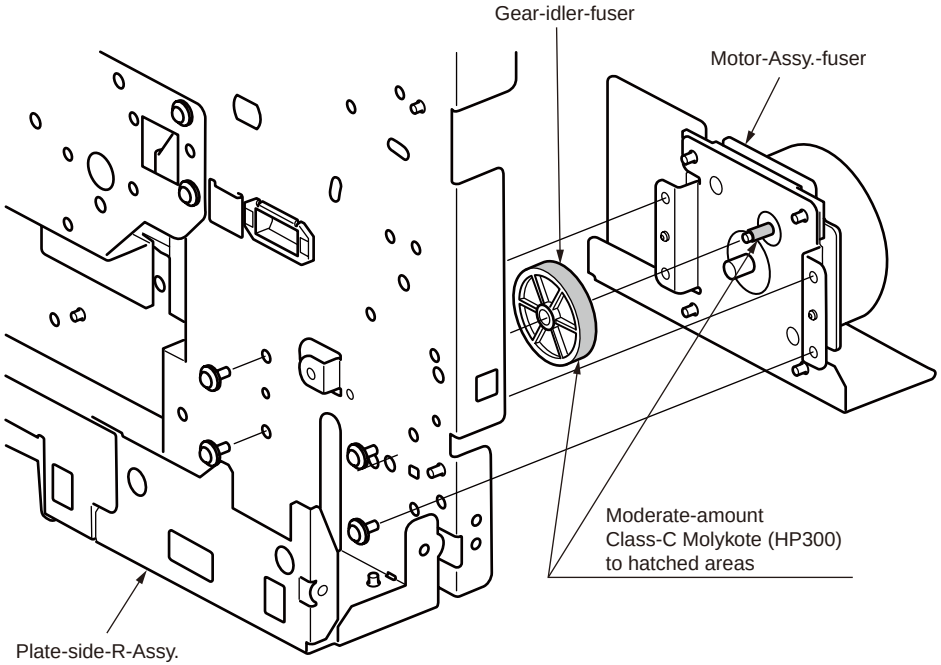
⑨-2 Plate-side-R-Assy.



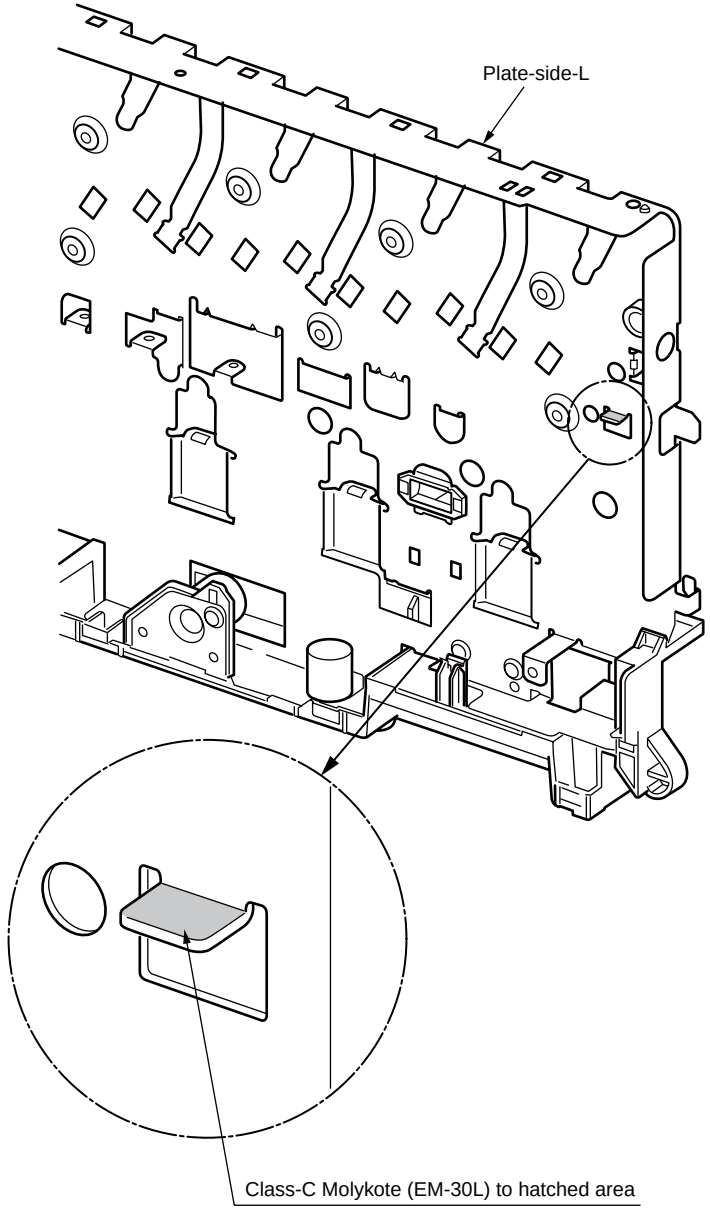
⑨-3 Plate-side-R-Assy.



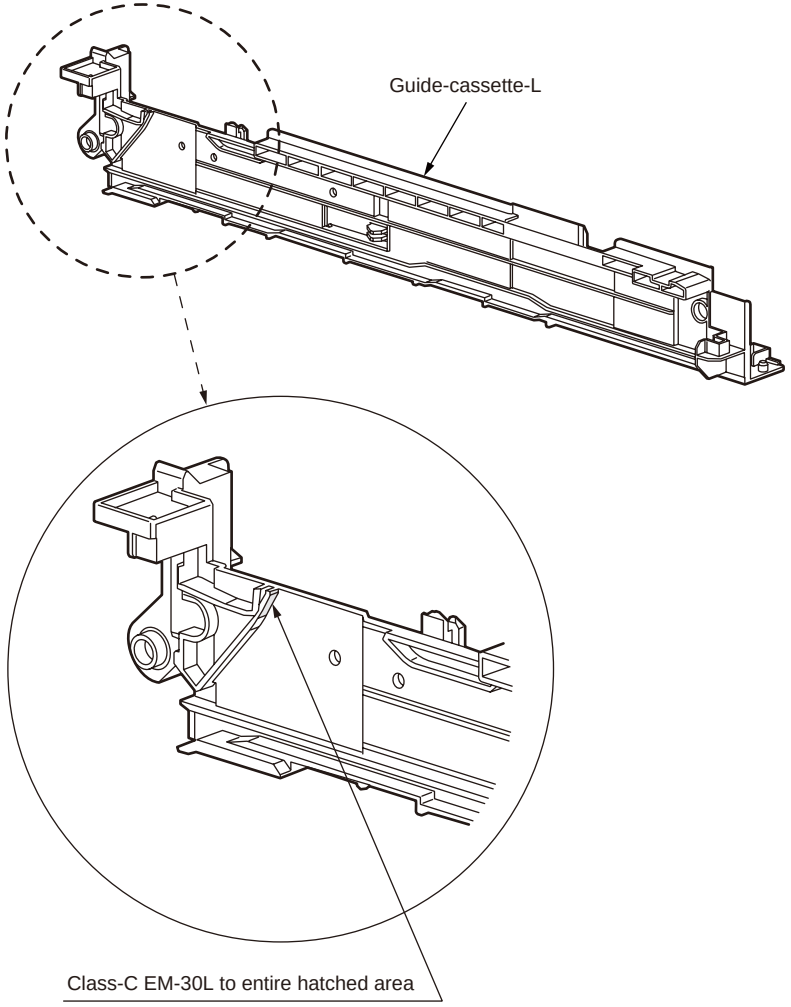
⑨-4 Plate-side-R-Assy.



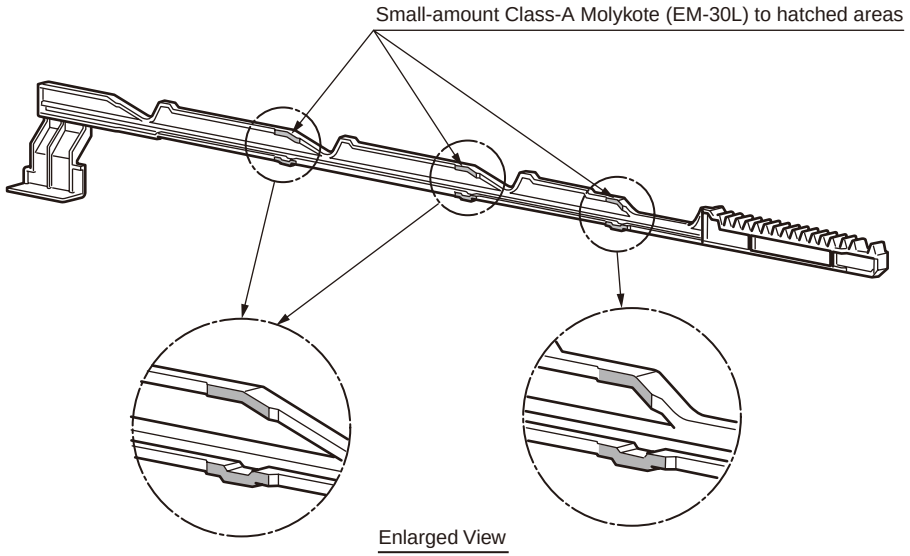
⑩-1 Plate-side-L-Assy.

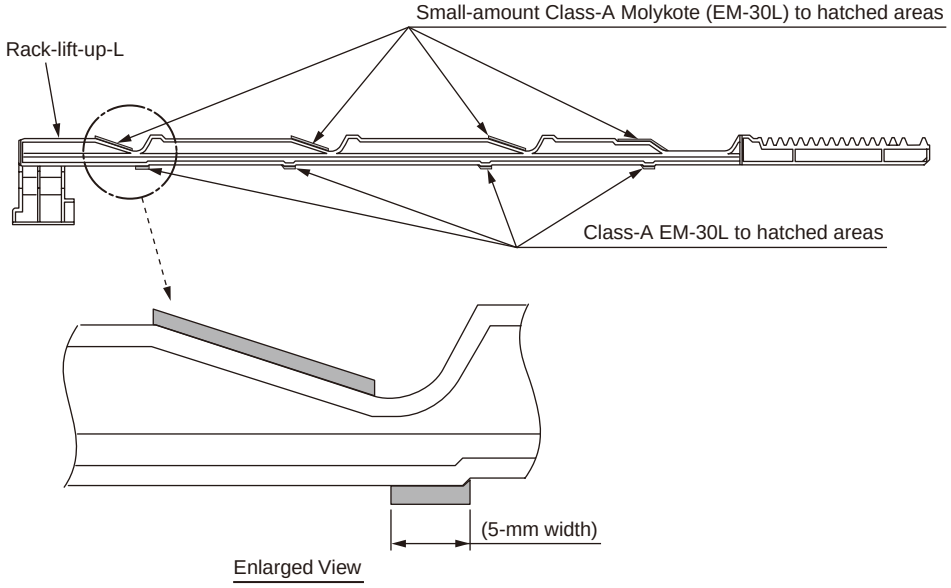


⑩-2 Plate-side-L-Assy.

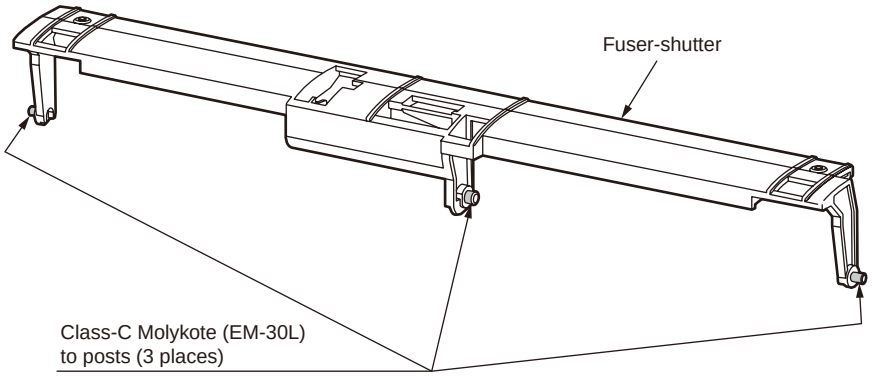


⑩-3 Plate-side-L-Assy.

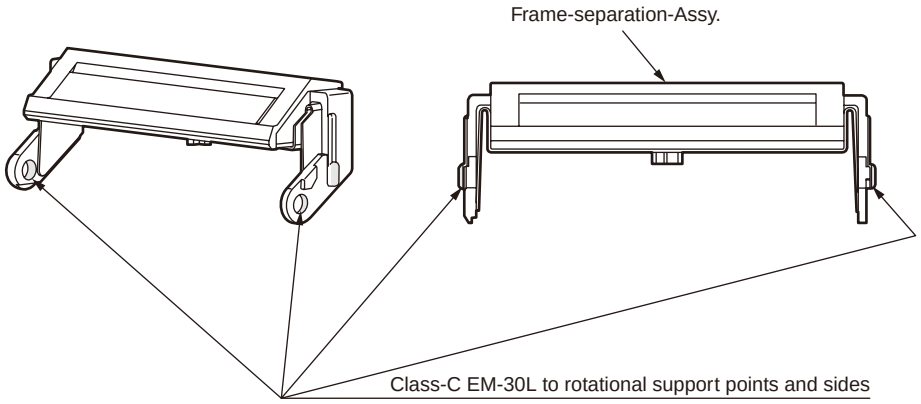




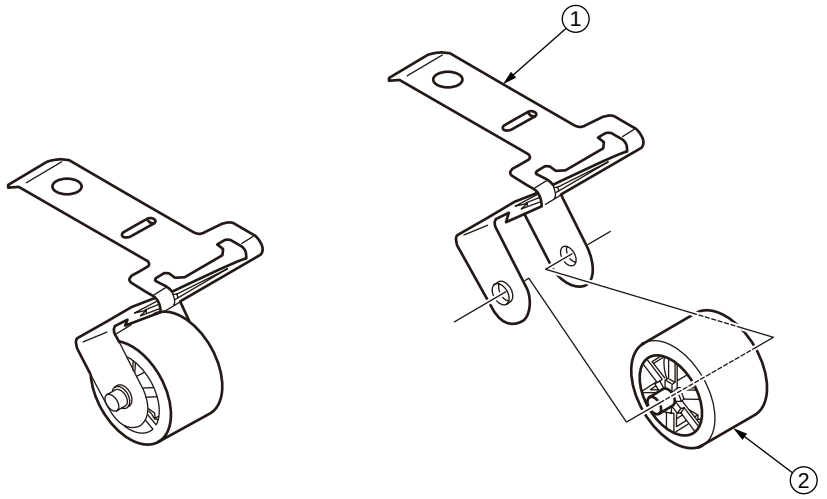
⑪ Sensor-registration-Assy.

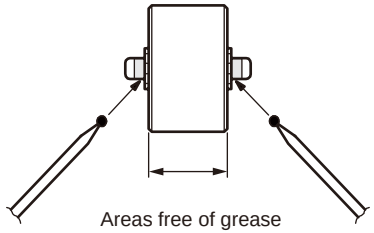


⑫ Cassette-Assy.



⑬ Roller-Assy.-idler (FD)

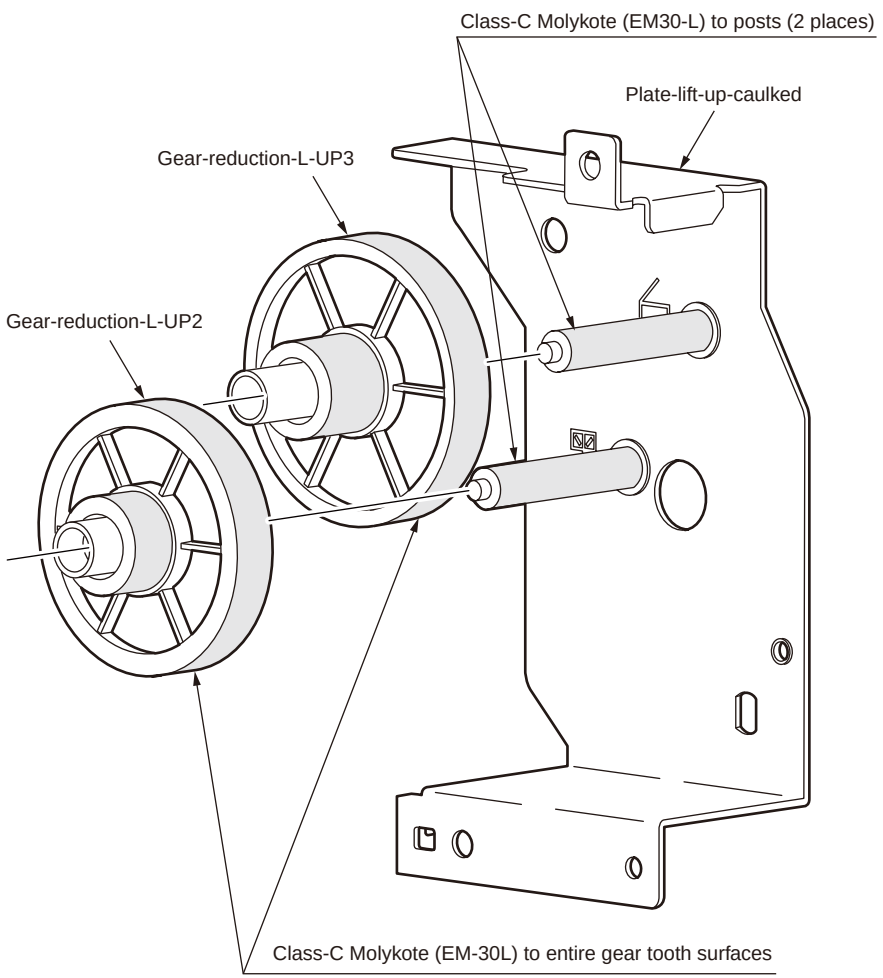


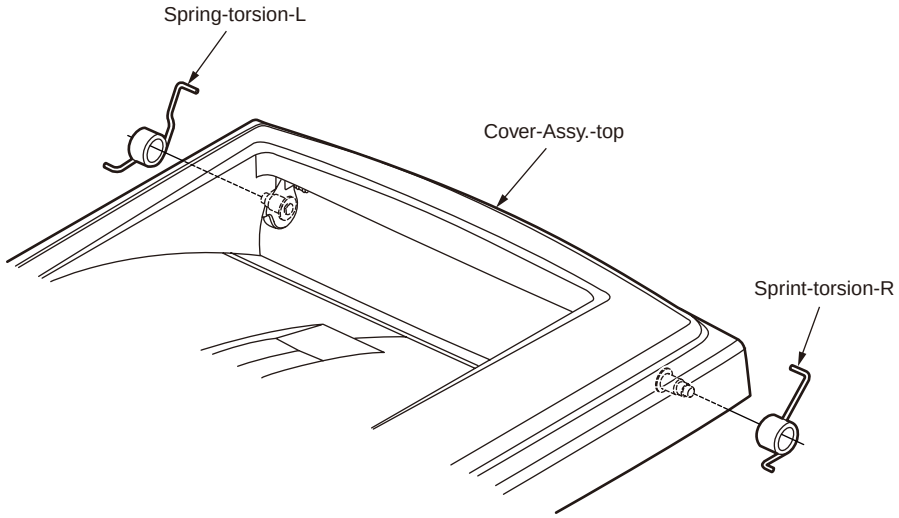


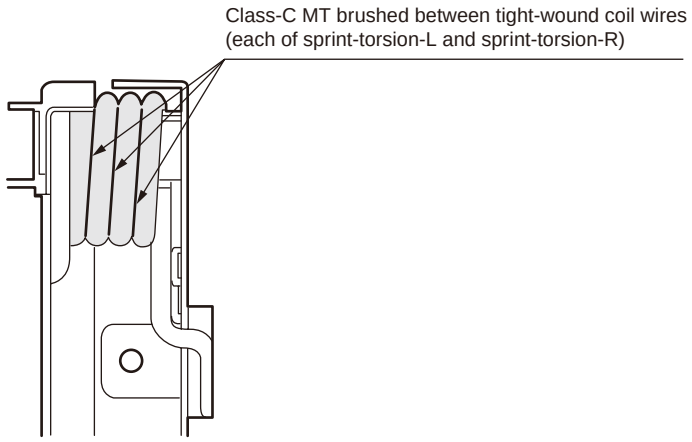
Grease Application:

Apply a very small amount (Class S) of Molykote (EM-30L) to the sliding areas of ① and ② (hatched areas) before assembling them.

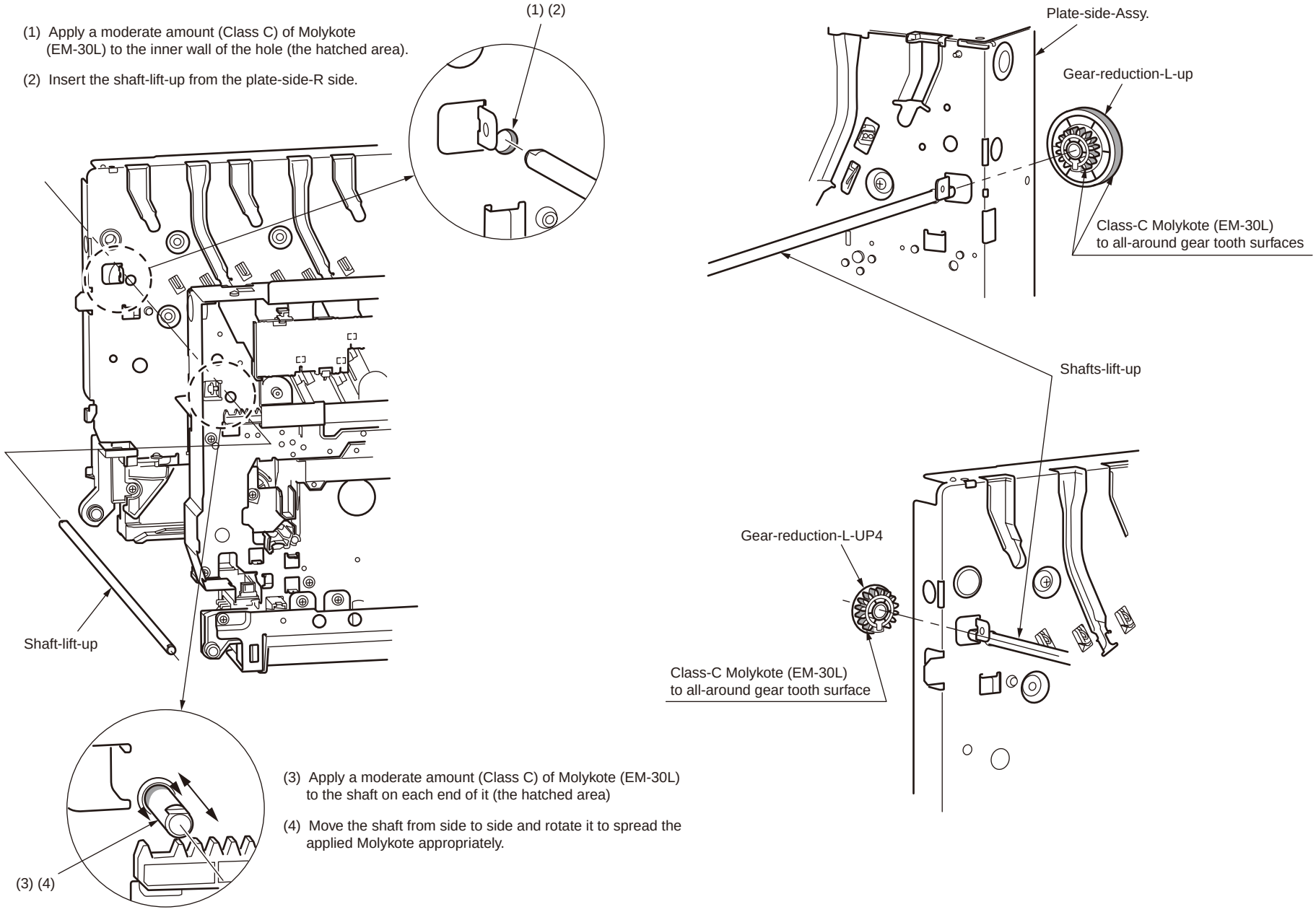
⑭-1 Printer-unit



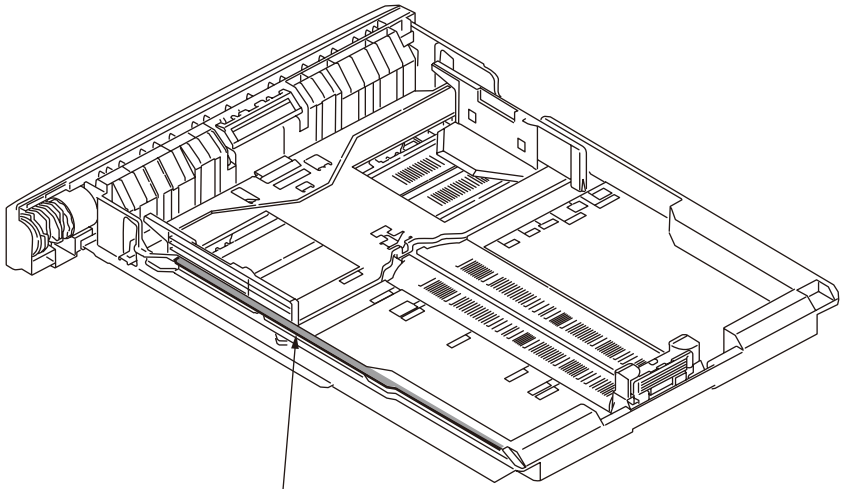




⑭-2 Printer-unit


(1) Apply a moderate amount (Class C) of Molykote (EM-30L) to the inner wall of the hole (the hatched area).
(2) Insert the shaft-lift-up from the plate-side-R side.
(1) (2)
Shaft-lift-up
(3) (4)
(3) Apply a moderate amount (Class C) of Molykote (EM-30L) to the shaft on each end of it (the hatched area)
(4) Move the shaft from side to side and rotate it to spread the applied Molykote appropriately.
Plate-side-Assy.
Gear-reduction-L-up
Class-C Molykote (EM-30L) to all-around gear tooth surfaces
Shafts-lift-up
Gear-reduction-L-UP4
Class-C Molykote (EM-30L) to all-around gear tooth surface

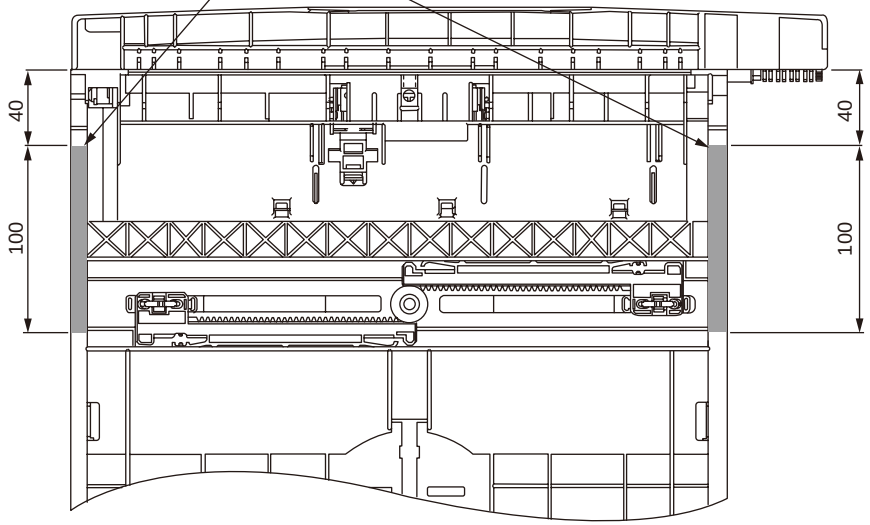
⑭-3 Printer-unit



Small-amount Class-A PM to hatched areas

(1) To apply: Wipe the hatched areas with material like a cloth impregnated with a small amount of PM.

(2) After applying PM, make sure that, by pulling out and inserting the cassettes several times, no scraping sounds occur.



5. MAINTENANCE MENUS

C830/C821 can be adjusted by using Maintenance Utility, or button operation on its operator panel. On the panel, maintenance menus are provided in addition to general menus. Select the menu intended for each adjustment purpose.

5.1 System Maintenance menu (for maintenance personnel) 120
5.2 Maintenance Utility 122
5.3 User maintenance menu functions 124
5.4 Setup after part replacement 146
5.5 Manual density adjustment setting 148
5.6 Boot Menu List 149

5.1 System Maintenance menu (for maintenance personnel)

Turning on each printer while the MENU up-arrow (/\), MENU down-arrow (\/) and HELP button combination is used on its operator panel starts its System Maintenance menu. The menu is displayed in English irrespective of the destination of the product.

Note! The menu allows for changing parameters such as the destination of the printer and is transparent to end-users of the printer.

Table 5-1: Maintenance menu display table

Category	Option (1st row)		Settings (2nd row)	DF	Function
System Maintenance	Enter Password		****** ******	000 000	Enters a password to enter the System Maintenance menu. The password defaults to 000000. Six to twelve alphanumeric characters can be entered as the password.
	OKIUSER		ODA OEL APS JP1 JPOEM1 OEMA OEML	*	Sets any of the destinations: JPOEM1 (OEM in Japan); OEMA (Overseas OEM of A4-size-default printer); and OEML (Overseas OEM of Letter-size-default printer). The printer is rebooted automatically after this option is exited.
	Maintenance Menu				Display condition: The security hard disk function is disabled.
		Format HDD	Execute	-	Initializes an HDD. Pressing the Enter button displays the confirmation message: Are You Sure? Yes No No restores the display of this menu. Yes exits the menu, starting formatting an HDD that has been installed on the printer. Display condition: An HDD has been installed on the printer (Boot Menu-Storage Setup-Enable HDD has been set to YES).
System Maintenance	Maintenance Menu	Format Flash ROM	Execute	-	Initializes flash ROM. Pressing the Enter button displays the confirmation message: Are You Sure? Yes No No restores the display of this menu. Yes exits the menu, starting formatting a resident (on-board) flash device of the printer. *** Never use this option.**
		Reset EEPROM	Execute	-	Resets the information in EEPROM to factory default settings. The printer is rebooted automatically after that. * This does not initialize part of special information in the EEPROM.
	Maintenance Print Menu		Enable Disable	*	Sets whether to enable or disable display of 'Print Information'-'ID Check Pattern' and 'Engine Status'. Disable does not display them in the Function menu. After change of the setting for this option, exiting it restarts the printer.
	Fuse Keep Mode		Execute	-	Places the printer online, a command being issued from the CU to PU, when the Enter button is pressed. With the printer on, a consumable of the printer can be replaced with a new one, and then the printer can be checked for proper operation (where, not breaking the new one's fuse, the printer does not count consumption as the life of the consumable replaced with the one). Turning off the printer ends the check mode, and then turning it on disables the mode.

Category	Option (1st row)		Settings (2nd row)	DF	Function
System Maintenance	Personality	IBM 5577	Enable Disable	*	Changes the support PDL language default based on the destination of the printer. Under 'Print Setup'-'Personality' in the Function menu, the printer does not display languages disabled with this option. Displaying INVALID DATA, the printer discards print data received in a language disabled with the option.
		IBM PPR III XL	Enable Disable	*	
		EPSON FX	Enable Disable	*	
		HP-GL/2	Enable Disable	*	
	Change Password			-	Changes a password. Pressing the Enter button with this option displayed displays 'NEW PASSWORD' and 'VERIFY PASSWORD', and then a new password can be entered.
		New Password	****** ******	-	Sets a new password to enter the System Maintenance menu. Six to twelve alphanumeric characters can be entered as the password.
		Verify Password	****** ******	-	Prompts a user to verify and enter again the new password that the use set for NEW PASSWORD to enter the System Maintenance menu. Six to twelve alphanumeric characters can be entered as the password.
	Diagnostic Mode			-	Enters the engine self-diagnostic mode.

5.2 Maintenance Utility

The adjustments described in table 5-2 should be made by using Maintenance Utility. Details on the utility are as follows:

(1) Maintenance Utility operation manuals:

42678801FU01 Rev. 21 or higher (Japanese)

42678801FU02 Rev. 21 or higher (English)

(2) Maintenance Utility program:

Applicable operating system	File name	Part number
Win9X/ME/NT/2000/XP (Japanese/English)	MuWin.zip	42678801FW01 Rev. 21 or higher

Table 5-2: Adjustment options in Maintenance Utility

	Option	Adjustment	Section in Maintenance Utility operation manual	Operation from operator panel (section in this maintenance manual)
1	PU board replace-ment	Copies the information from the EEPROM on the PU board. Purpose: To copy the information stored on the EEPROM on the PU board when the board needs to be replaced with another one due to maintenance.	2.4.1.1.1	Unavailable
2	PU serial number setting	Rewrites the serial number recorded on the PU. Purpose: To configure a maintenance replacement PU board to which the information on the EEPROM on the PU board cannot be copied (due to an interface error).	2.4.1.1.2.2	Unavailable
3	Factory shipping mode	Switches between Factory and Shipping modes. Purpose: To configure a maintenance replacement PU board to which the information on the EEPROM on the PU board cannot be copied (due to an interface error). The maintenance board is set to the Factory mode usually by default and, by using this function, must be set to the Shipping mode.	2.4.1.1.2.3	5.3.2.10
4	CU board replace-ment	Copies the information from the EEPROM on the PU board. Purpose: To copy the information stored on the EEPROM on the PU board when the board needs to be replaced with another one due to maintenance.	2.4.1.1.3	Unavailable
5	Serial number information setting	Selects the printer serial number recorded on the CU to rewrite the output mode and the printer's serial number.	2.4.1.1.4.3	Unavailable
6	PCB option setup informa-tion	Checks serial number information and the Factory/Shipping mode.	2.4.1.1.7	Unavailable
7	USB software update	Updates the USB software.	2.4.2.2.1	Unavailable
8	NIC software update	Updates the NIC software.	2.4.2.2.2	Unavailable
9	NIC Web page update	Updates Oki Data's NIC Web page.	2.4.2.2.3	Unavailable
10	Mac address setting	Sets the Mac address.	2.4.2.2.4	Unavailable
11	Consuma-ble counter mainte-nance function	Copies the counter value of each consumable: Image drum (Y, M, C or K) Fuser Belt Toner (Y, M, C or K) Purpose: To copy the counter value of each consumable in the printer to use in another printer.	2.4.1.2.1	Unavailable

	Option	Adjustment	Section in Maintenance Utility operation manual	Operation from operator panel (section in this maintenance manual)
12	Destina-tion/ PnP information setup	Sets or checks the (CU) destination, device identification and USB identification.	2.4.1.2.9	5.4.3
13	Consuma-ble counter display	Checks the current consumable counter values.	2.4.1.3.1	5.1 (ENG STATUS PRINT)
14	Menu setup check	Displays the menu settings set on the printer (CU).	2.4.1.3.2	Print a configuration report (Menu Map) (refer to User's Manual).
15	Print information check	Checks the Mac address and each firmware version.	2.4.1.3.3	Print a configuration report (Menu Map) (refer to User's Manual).
16	Memory value check	Checks the information on the CPU and memory installed on the printer (CU).	2.4.1.3.4	Print a configuration report (Menu Map) (refer to User's Manual).
17	Test print	Executes the local print function and sends a specified file. Purpose: To check the printer on a stand-alone basis and send a download file.	2.4.1.4.1	Perform local printing (refer to System Specification).
18	Switch scan test	Executes the switch scan test. Purpose: To check each sensor for proper operation.	2.4.1.5.1	
19	Motor clutch test	Executes the motor clutch test. Purpose: To check each item, such as a motor or clutch, for proper operation.	2.4.1.5.2	

	Option	Adjustment	Section in Maintenance Utility operation manual	Operation from operator panel (section in this maintenance manual)
20	Color registration adjustment test	Executes the color registration adjustment test.	2.4.1.5.3	
21	Density adjustment test	Executes the density adjustment test.	2.4.1.5.4	
22	Auto density adjustment control parameter setting **(must not be used)**	Sets the auto density setting control parameter.	Never use this option.	
23	Counter display	Checks the consumable, continuous consumable and waste toner counter values.	2.4.1.5.6	
24	Local parameter setting	Switches between the Factory and Shipping modes and checks the status of the fuse.	2.4.1.5.7	
25	Engine parameter setting	Makes an engine parameter setting.	2.4.1.5.8	
26	Media transfer parameter setting	Makes a print media transfer parameter setting.	2.4.1.5.9	

Note! Do not operate or set options marked with 'Never use this option', or a malfunction is potentially caused.

5.3 User maintenance menu functions

5.3.1 Maintenance menu (for end-users)

Some general menu categories on the operator panel of C830/C821 serve as maintenance menus (but are not system maintenance menus).

The options available in the menus are as follows:

Default setting in shade area

Option		Settings	Function
System Adjust	Time Period to Go Power Save Mode	5 min 15 min 30 mi 60 min 240 min	Sets the time to establish the power save mode.
	Clearable Warning	Online Job	Sets the timing for clearable warnings to disappear.
	Auto Continue	On Off	Sets whether to recover the printer automatically upon a memory overflow or tray request.
	Manual Timeout	Off 30 sec 60 sec	Sets the time to wait for feeding paper for printing a job by manually loading the paper. The job is cancelled when the paper is not loaded within the time.
System Adjust (cont.)	Wait Timeout	Off 5 sec 10 sec 20 sec 30 sec 40 sec 50 sec 60 sec 90 sec 120 sec 150 sec 180 sec 210 sec 240 sec 270 sec 300 sec	Sets the time period between stopping data reception and forced printing of a job. When a PostScript job, the job is not printed, being cancelled.
	Low Toner	Continue Stop	Sets the printing operation when a state that the printer is low on toner is detected. Continue allows the printer to continue printing while remaining online. Stop makes the printer offline.
	Jam Recovery	On Off	Sets whether to perform recovery printing when a paper jam occurs. Off cancels a job including the page being printed when the jam occurs.
	Error Report	On Off	Prints an error report when an internal error occurs. This option is available only for PostScript and PCL XL.
	Print Position Adjust – X Adjust	0.00 mm +0.25 mm to -2.00 mm +2.00 mm to -0.25 mm	Adjusts the position of a whole printing image (in 0.25-mm increments) perpendicular to the direction of paper movement (i.e. horizontally).

Option			Settings	Function
System Adjust (cont.)	Print Position Adjust (cont.)	Y Adjust	0.00 mm +0.25 mm to -2.00 mm +2.00 mm to -0.25 mm	Adjusts the position of a whole printing image (in 0.25-mm increments) parallel to the direction of paper movement (i.e. vertically).
		Duplex X Adjust	0.00 mm +0.25 mm to -2.00 mm +2.00 mm to -0.25 mm	During the flip-side printing of duplex printing, adjusts the location of a whole printing image (in 0.25-mm increments) perpendicular to the direction of paper movement (i.e. horizontally).
		Duplex Y Adjust	0.00 mm +0.25 mm to -2.00 mm +2.00 mm to -0.25 mm	During the flip-side printing of duplex printing, adjusts the location of a whole printing image (in 0.25-mm increments) parallel to the direction of paper movement (i.e. vertically).
	Plain-Paper Black Setting		0 +1 +2 -2 -1	Performs micro adjustment when visible faded black print, or visible light black specks or streaks result more frequently on plain paper. Decrease the setting value when such specks or streaks, or snow flake-like print in high-density print areas, result.
	Plain-Paper Color Setting		0 +1 +2 -2 -1	Performs micro adjustment when visible faded color print, or visible light color specks or streaks result more frequently on plain paper. Decrease the setting value when such specks or streaks, or snow flake-like print in high-density print areas, result.
	Transparency Black Setting		0 +1 +2 -2 -1	Performs micro adjustment when visible faded black print, or visible light black specks or streaks result more frequently on transparencies. Decrease the setting value when such specks or streaks, or snow flake-like print in high-density print areas, result.

Option		Settings	Function
System Adjust (cont.)	Transparency Black Setting	0 +1 +2 -2 -1	Performs micro adjustment when visible faded color print, or visible light color specks or streaks result more frequently on transparencies. Decrease the setting value when such specks or streaks, or snow flake-like print in high-density print areas, result.
	SMR Setting	0 +1 +2 +3 -3 -2 -1	Makes a setting when print quality is uneven.
	BG Setting	0 +1 +2 +3 -3 -2 -1	Makes a setting when a dirty background results.
	Drum Cleaning	On Off	Sets whether to perform, for reduced white line jitter, image drum idling before printing.
	Hex Dump	Execute	Prints out data received in hexadecimal format.

Option		Settings	Function
Enter Password		xxxxxxxxxxxx	Enters a password to start the administrator menu.
Network Setup			
Print Setup			
PostScript Setup			
PCL Setup			
Color Setup			
Memory	Receive Buffer Size	Auto 0.5 MB 1 MB 2 MB 4 MB 8 MB 16 MB 32 MB *	Sets receive buffer size. *: Settings may not be displayed depending on the memory capacity.
	Resource Save Area	Auto Off 0.5 MB 1 MB 2 MB 4 MB 8 MB 16 MB 32 MB *	Sets font cache area size. *: Settings may not be displayed depending on the memory capacity.
Flash Memory *1	Initialization	Execute	Initializes flash memory.

Option			Settings	Function
Hard Disk *2	Initialization		Execute	Initializes a hard disk, setting it to the factory-shipped configuration.
	Change Partition	XX% PCL	XX%	Sets partition size.
		XX% Shared	XX%	
		XX% Post-Script	XX%	
		<Apply>	XX%	
	Format		PCL Shared PostScript	Formats a specified partition.
System Adjust	Near-Life Status		Enable Disable	Sets whether to control the LCD display when an image drum, fuser or belt near-life warning occurs.
	Near-Life LED		Enable Disable	Sets whether to control the LED turn-on when a toner, image drum, fuser or belt near-life warning occurs.
Change Password	New Password		xxxxxxxxxxxx	Sets a new password to start Administrator Menu.
	Password Again		xxxxxxxxxxxx	Enters a new password again to start Administrator Menu.
Settings	Restore Defaults		Settings	Resets CU EEPROM, restoring user menu settings to their defaults.
	Save Settings		Execute	Saves current menu settings.
	Call Settings		Execute	Sets saved menu settings.

*1: The option is displayed when Boot Menu-Storage Setup-Enable Initialization is set to Yes.

*2: When Boot Menu-Storage Setup-Enable Initialization is set to Yes and an optional internal hard disk is installed, the option is displayed.

5.3.2 Self-diagnostic mode

This section describes LEVEL 0 and LEVEL 1.

5.3.2.1 Operator Panel

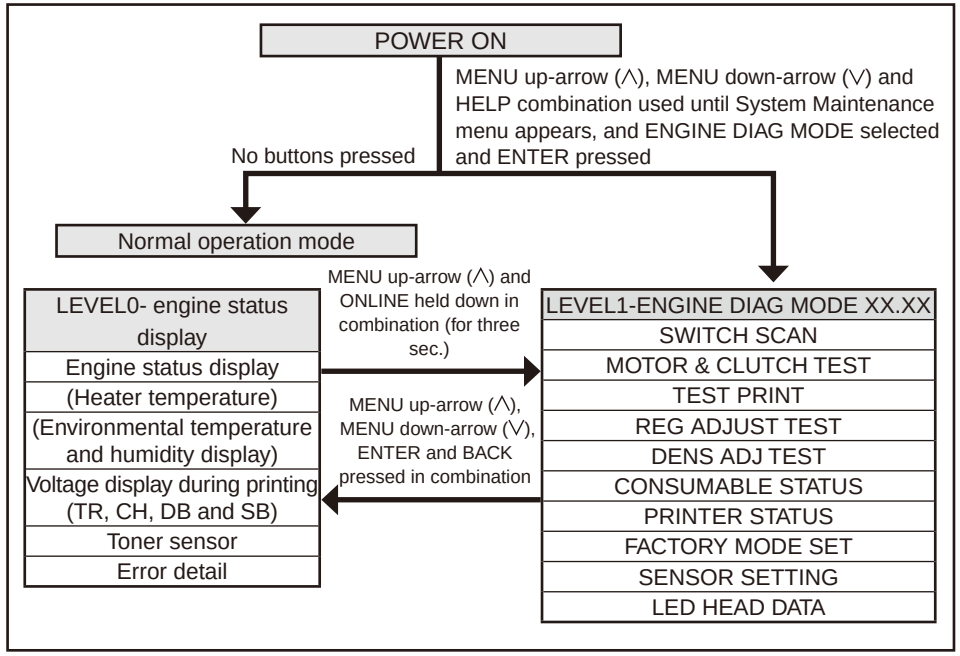
The following description on operating the self-diagnostic is provided, premised on the following operator panel layout:

Self-diagnostic mode layout (entire)

(1) Menu option display switching

The level in a shaded area (XXXXX) can be displayed only from another one.

Use the MENU up-arrow (∧) or MENU down-arrow (∨) button to display the menu option shown in a non-shaded area (XXXXX).

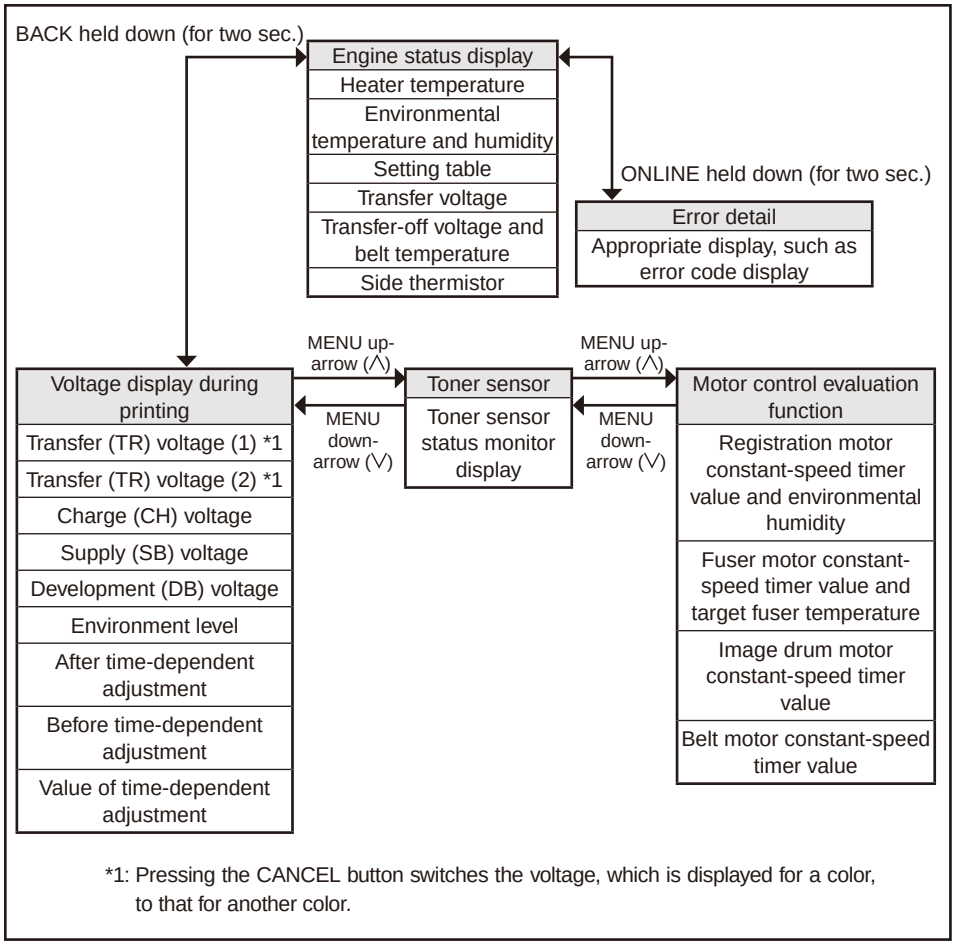

POWER ON
MENU up-arrow (∧), MENU down-arrow (∨) and HELP combination used until System Maintenance menu appears, and ENGINE DIAG MODE selected and ENTER pressed
No buttons pressed
Normal operation mode
LEVEL0- engine status display
Engine status display
(Heater temperature)
(Environmental temperature and humidity display)
Voltage display during printing (TR, CH, DB and SB)
Toner sensor
Error detail
MENU up-arrow (∧) and ONLINE held down in combination (for three sec.)
MENU up-arrow (∧), MENU down-arrow (∨), ENTER and BACK pressed in combination
LEVEL1-ENGINE DIAG MODE XX.XX
SWITCH SCAN
MOTOR & CLUTCH TEST
TEST PRINT
REG ADJUST TEST
DENS ADJ TEST
CONSUMABLE STATUS
PRINTER STATUS
FACTORY MODE SET
SENSOR SETTING
LED HEAD DATA

LEVEL0

(1) Menu option display switching

Hold down the BACK or ONLINE button or momentarily press the MENU up-arrow (∧) or MENU down-arrow (∨) button to display the option shown in a shaded area (XXXXX).

Use the MENU up-arrow (∧) or MENU down-arrow (∨) button to display the menu option shown in a non-shaded area (XXXXX).


BACK held down (for two sec.)
Engine status display
Heater temperature
Environmental temperature and humidity
Setting table
Transfer voltage
Transfer-off voltage and belt temperature
Side thermistor
ONLINE held down (for two sec.)
Error detail
Appropriate display, such as error code display
Voltage display during printing
Transfer (TR) voltage (1) *1
Transfer (TR) voltage (2) *1
Charge (CH) voltage
Supply (SB) voltage
Development (DB) voltage
Environment level
After time-dependent adjustment
Before time-dependent adjustment
Value of time-dependent adjustment
MENU up-arrow (∧)
MENU down-arrow (∨)
Toner sensor
Toner sensor status monitor display
MENU up-arrow (∧)
MENU down-arrow (∨)
Motor control evaluation function
Registration motor constant-speed timer value and environmental humidity
Fuser motor constant-speed timer value and target fuser temperature
Image drum motor constant-speed timer value
Belt motor constant-speed timer value

*1: Pressing the CANCEL button switches the voltage, which is displayed for a color, to that for another color.

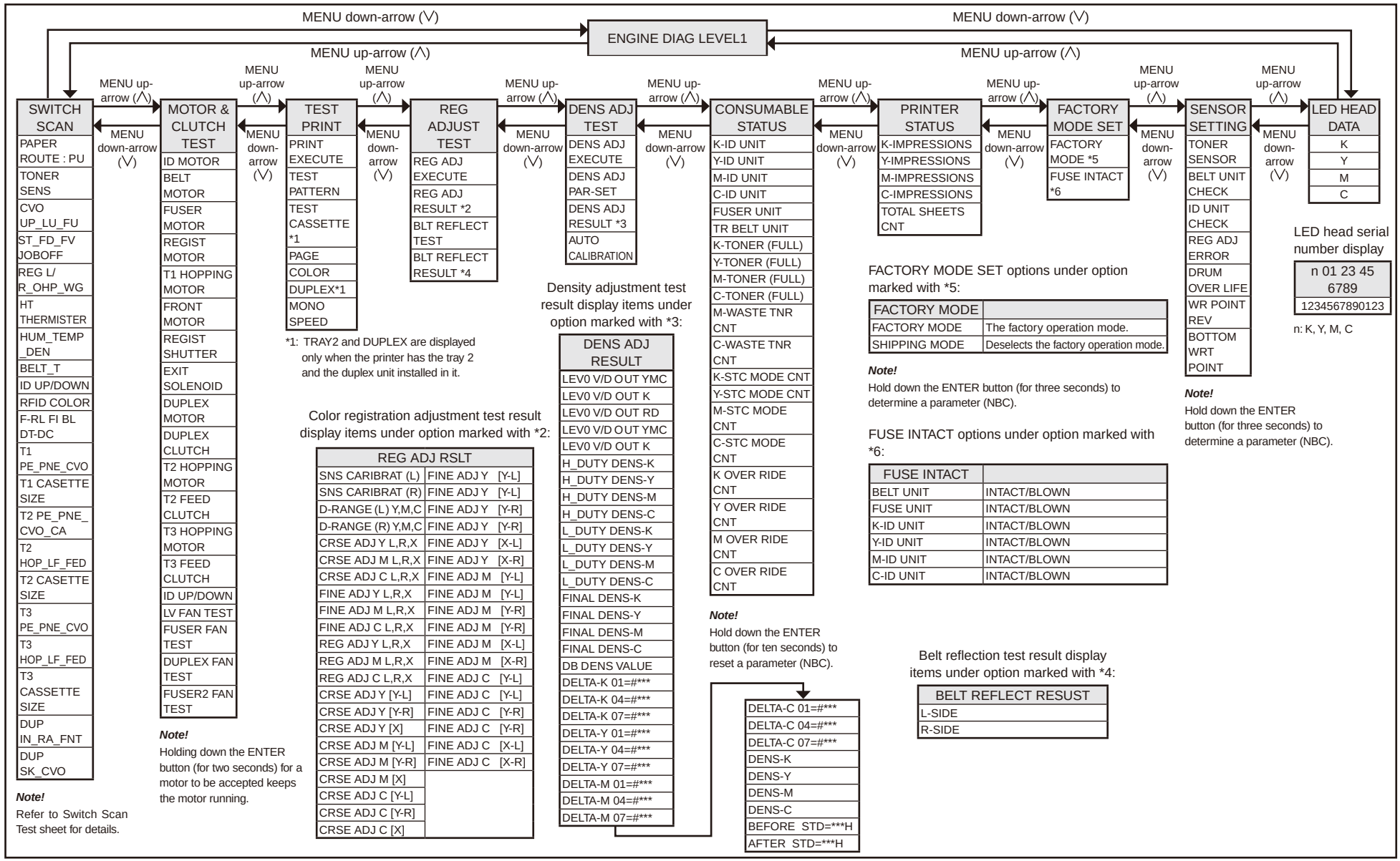
LEVEL1

(1) Menu option display switching

Use the MENU up (/\) or MENU down-arrow (\/) button to select the option shown in a shaded area (XXXXX), and press ENTER to execute the option.

Use ENTER or BACK to display the option shown in a non-shaded area (XXXXX), and use the MENU up-arrow (/\) or MENU down-arrow (\/) button to select the option.

Press ENTER to execute a test, and BACK to end the test.



5.3.2.2 Normal self-diagnostic mode (level 1)

The normal self-diagnostic mode menus are as follows:

	Option	Self-diagnostic menu	Adjustment	Maintenance Utility
1	Switch scan test	SWITCH SCAN	Checks an input sensor or switch.	No. 18
2	Motor and clutch test	MOTOR&CLTCH TEST	Tests the operation of a motor or clutch.	No. 19
3	Test printing	TEST PRINT	Prints a test pattern stored in the PU.	Unavailable
4	Color registration adjustment test	REG ADJUST TEST	Judges the color registration adjustment mechanism as pass or fail.	No. 20
5	Density adjustment test	DENS ADJ TEST	Judges the density adjustment mechanism as pass or fail.	No. 21
6	Consumable counter display	CONSUMABLE STATUS	Displays the usage of a consumable.	No. 23
7	Consumable life counter display	PRINTER STATUS	Displays the life counter of a consumable.	No. 23
8	Factory-Shipping mode switching	FACTORY MODE SET	Switches between Factory and Shipping modes	No. 24
9	Fuse status display		Displays the status of a fuse.	No. 24
10	Engine parameter setting	SENSOR SETTING	Sets whether to enable or disable error detection performed by each sensor.	No. 25
11	NVRAM parameter setting	NVRAM PARAMETER	Must not be used.	Unavailable

5.3.2.2.1 Entering self-diagnostic mode (level 1)

Note! Entering the System Maintenance mode of C830/C821 requires a password. Refer to table 5-1 for description on it.

1. Turn on the printer while using the MENU up-arrow (∧) and MENU down-arrow (∨) button combination to enter the System Maintenance mode.
2. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button more than one time to display ENGINE DIAG MODE. Then press the ENTER button to display DIAGNOSTIC MODE.

```
DIAGNOSTICMODE
XX.XX.XX  FACTORY/SHIPPING
```

3. XX.XX.XX on the LCD display identifies the PU firmware version. The FACTORY WORKING MODE setting is displayed in the right portion of the lower row. The setting is normally S-MODE, which identifies Shipping.
4. Press the MENU up-arrow (∧) and MENU down-arrow (^a) button to go to each self-diagnostic step (press the MENU up-arrow (∧) or MENU down-arrow (^a) button to display the next or preceding menu option).

5.3.2.2.2 Exiting self-diagnostic mode

1. Turn of the printer and, after ten seconds, turn it on.

5.3.2.3 Switch scan test

The switch scan test is used for checking entrance sensors and switches.

1. Enter the self-diagnostic mode (level 1) and, until SWITCH SCAN appears on the upper display, press the MENU up-arrow (∧) or MENU down-arrow (∨) button (the MENU up-arrow (∧) button displays the next test option and the MENU down-arrow (∨) button displays the preceding test option). Then press the ENTER button.

SWITCH SCAN

2. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until an option shown in table 5-3 for the unit to test appears on the lower display (the MENU up-arrow (∧) button displays the next option and the MENU down-arrow (∨) button displays the preceding option).

3. Press the ENTER button. The switch scan test starts, the unit's name and current status being displayed

PAPER ROTE:PU
1=H 2=L 3=H 4=L

   Operate the unit (figure 5-1). Display information on applicable LCD display (the information displayed vary depending on the sensor.

4. Press the CANCEL button. The state in step 2 is restored.

5. Repeat steps 2 through 4 when necessary.

6. Press the BACK button to end the test (the state in step 1 is restored).

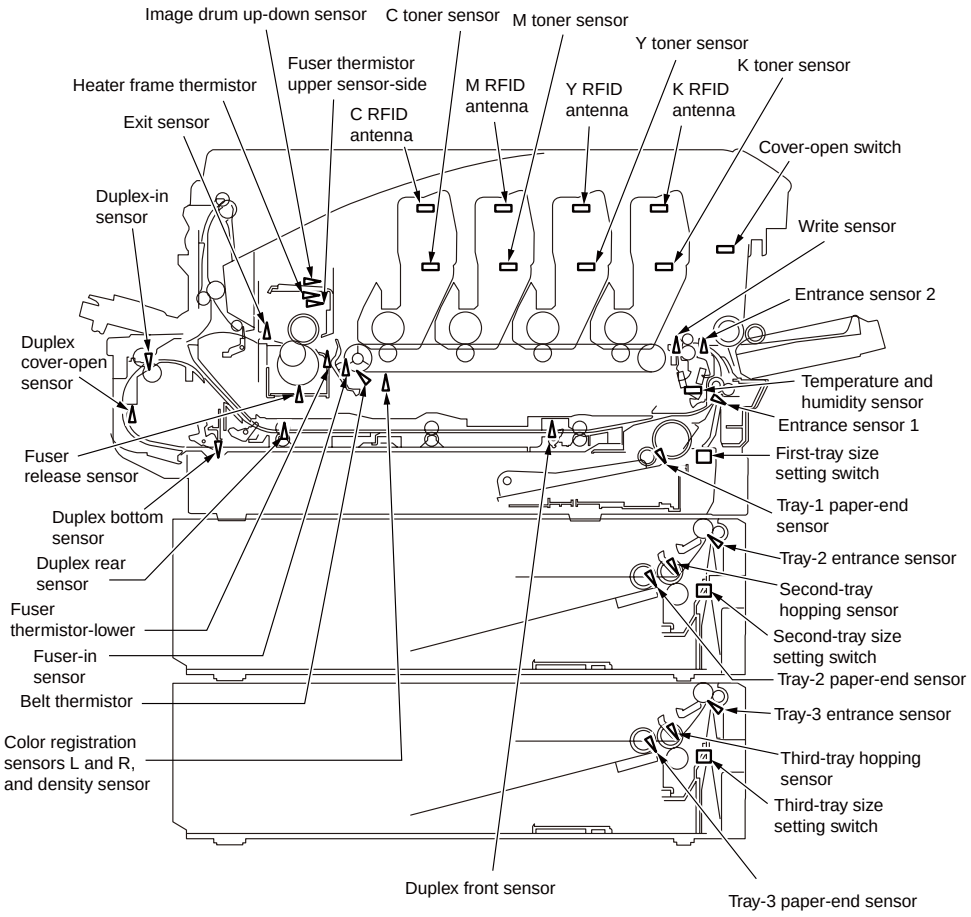


Figure 5-1: Switch sensor locations

Table 5-3: Switch scan detail

Lower display shows asterisk (*) when function on upper display is unavailable.

*1: An L is displayed when cover is open.

Upper Display	1		2		3		4	
	Detail	Lower display	Detail	Lower display	Detail	Lower display	Detail	Lower display
PAPER ROUTE: PU	Entrance Sensor 1	H: No paper exists. L: Paper exists.	Entrance sensor 2	H: No paper exists. L: Paper exists.	Write sensor	H: No paper exists. L: Paper exists.	Exit sensor	H: No paper exists. L: Paper exists.
TONER SENS	Toner sensor K	H: Light shielded. L: Light reflected.	Toner sensor Y	H: Light shielded. L: Light reflected.	Toner sensor M	H: Light shielded. L: Light reflected.	Toner sensor C	H: Light shielded. L: Light reflected.
CVO UP_LU_FU	Cover open switch	H: Close. L: Open.						
ST_FD_FU JOBOFF	Stacker-full sensor	H: No paper exists. L: Paper exists.						
REG L/R_OHP_WG	Color registration sensor L	AD value: ***H	Color registration sensor R	AD value: ***H				
HT THERMISTER	Fuser thermistor upper sensor	AD value: ***H	Fuser thermistor lower sensor	AD value: ***H	Fuser thermistor upper sensor-side	AD value: ***H	Heater frame thermistor	AD value: ***H
HUM_TEMP_DEN	Humidity sensor	AD value: ***H	Humidity sensor	AD value: ***H	Humidity sensor (K)	AD value: ***H	Humidity sensor (YMC)	AD value: ***H
BELT_T	Belt thermistor	AD value: ***H						
ID UP/DOWN	GREY	GREY					ID up-down sensor	H: Down. L: Up.
RFIE COLOR *1	K RFID antenna	UID: ***H	Y RFID antenna	UID: ***H	M RFID antenna	UID: ***H	C RFID antenna	UID: ***H
T1 PE_PNE_CVO	Tray-1 paper-end sensor	H: No paper exists. L: Paper exists.						
T1 CASETTE SIZE *1	Size setting switch 1	Port level H/L	Size setting switch 2	Port level H/L	Size setting switch 3	Port level H/L	Size setting switch 4	Port level H/L
T2 PE_PNE_CVO_CA	Tray-2 paper-end sensor	H: No paper exists. L: Paper exists.						
T2 HOP_LF_FED	Tray-2 hopping sensor	H: No paper exists. L: Paper exists.			Tray-2 entrance sensor	H: No paper exists. L: Paper exists.		
T2 CASETTE SIAE *1	Size setting switch 1	Port level H/L	Size setting switch 2	Port level H/L	Size setting switch 3	Port level H/L	Size setting switch 4	Port level H/L
T3 PE_PNE_CVO	Tray-3 paper-end sensor	H: No paper exists. L: Paper exists.						
T3 HOP_LF_FED	Tray-3 hopping sensor	H: No paper exists. L: Paper exists.			Tray-3 entrance sensor	H: No paper exists. L: Paper exists.		
T3 CASETTE SIZE	Size setting switch 1	Port level H/L	Size setting switch 2	Port level H/L	Size setting switch 3	Port level H/L	Size setting switch 4	Port level H/L
DUP IN_RA_FNT	Duplex-in sensor	H: No paper exists. L: Paper exists.			Duplex front sensor	H: No paper exists. L: Paper exists.		
DUP SK_CVO	Duplex bottom sensor	H: No paper exists. L: Paper exists.	Duplex cover sensor	H: Close. L: Open				

5.3.2.4 Motor and clutch test

The motor and clutch test is used for testing motors and clutches.

1. Enter the self-diagnostic mode (level 1) and, until MOTOR & CLUTCH TEST appears on the upper display, press the MENU up-arrow (/\) or MENU down-arrow (\/) button (the MENU up-arrow (/\) button displays the next test option and the MENU down-arrow (\/) button displays the preceding test option). Then press the ENTER button.

2. Press the MENU up-arrow (/\) or MENU down-arrow (\/) button until an option shown in table 5-4 for the unit to test appears on the lower display (the MENU up-arrow (/\) button displays the next option and the MENU down-arrow (\/) button displays the preceding option).

MOTOR & CLUTCH TEST
ID MOTOR

3. Press the ENTER button. The motor and clutch test starts, the unit's the name and current status starting to blink, and the unit being driven for ten seconds (refer to figure 5-2).

Note! The state in step 2 is restored after the unit is driven so. The unit is driven again by pressing an appropriate button.

- By usual printing driving, the clutch solenoid repeatedly is turned on and off (its motor is driven together with the solenoid when the solenoid cannot be driven solely for its mechanical structure). * Image drum up-and-down movement continues until the CANCEL button is pressed.
- The clutch solenoid is kept driven by holding down the ENTER button (two seconds) for a motor to be accepted.

4. Press the CANCEL button. The state in step 2 is restored.

5. Repeat steps 2 through 4 when necessary.

6. Press the BACK button to end the test (the state in step 1 is restored).

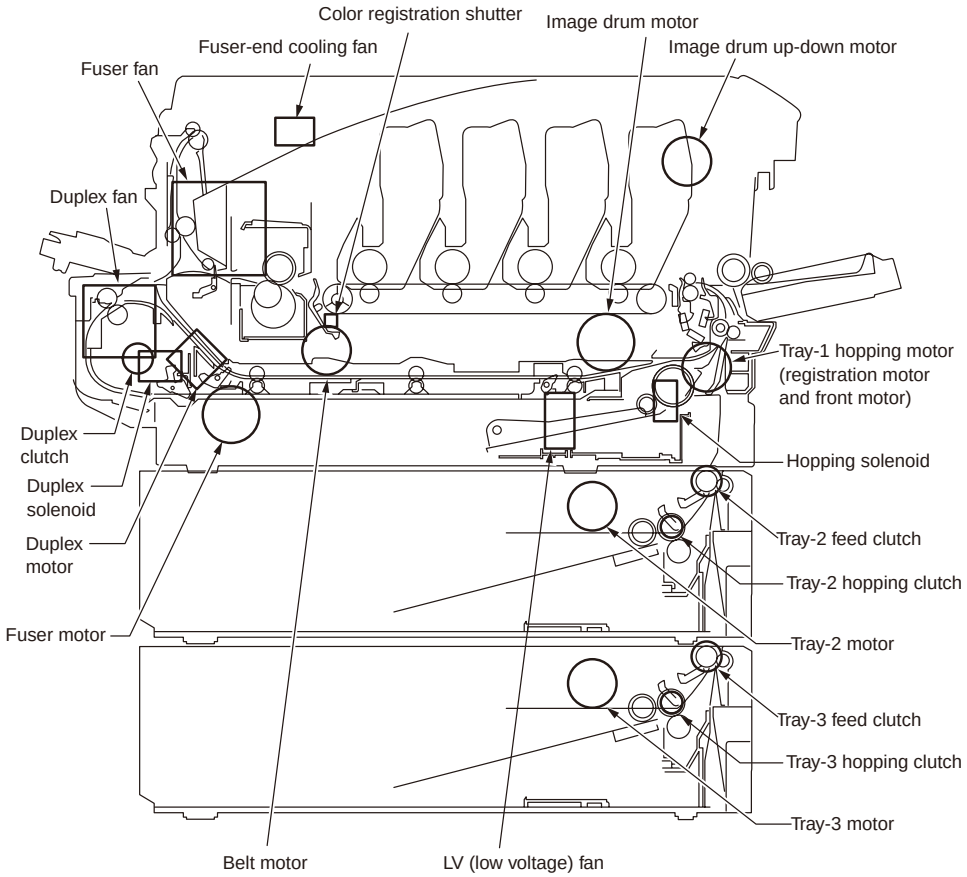


Figure 5-2

Table 5-4

Unit name displayed	Driving restriction	Remarks
ID MOTOR	All of the (black, yellow, magenta and cyan) image drums must be removed.	–
BELT MOTOR	All of the (black, yellow, magenta and cyan) image drums must be removed.	–
FUSER_RLS	–	–
REGIST MOTOR	–	–
T1 HOPPING MOTOR	–	–
FRONT MOTOR	–	–
REGIST SHUTTER	–	–
EXIT SOLENOID	–	–
DUPLEX MOTOR	–	OPTION
DUPLEX CLUTCH	–	OPTION
T2 HOPPING MOTOR	–	OPTION
T2 FEED CLUTCH	–	OPTION
T3 HOPPING MOTOR	–	OPTION
T3 FEED CLUTCH	–	OPTION
ID UP/DOWN	The top and front cover must be closed.	–
LV FAN TEST	–	–
FUSER FAN TEST	–	–
DUPLEX FAN TEST	–	–
FUSER2 FAN TEST	–	–

Note! Display while ID UP/DOWN is in progress

```
MOTOR & CLUTCH TEST
ID UP/DOWN      ***
```

Three asterisks (***): Identifies the number of times

Display after holding down REGIST SHUTTER ENTER button

```
MOTOR & CLUTCH TEST
SHT             ***
```

Three asterisks (***): Identifies the number of times

5.3.2.5 Test printing

The test printing is used for printing test patterns stored in the PU. Other patterns are stored in the controller.

1. Enter the self-diagnostic mode (level 1) and, until TEST PRINT appears on the upper display, press the MENU up-arrow (∧) or MENU down-arrow (∨) button (the MENU up-arrow (∧) button displays the next test option and the MENU down-arrow (∨) button displays the preceding test option). Then press the ENTER button.
2. A setting option used only in test printing appears on the lower display. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until the option to select appears (the MENU up-arrow (∧) button displays the next option and the MENU down-arrow (∨) button displays the preceding option). Then press the ENTER button. (Go to step 5 when, left set to its default, the option does not need to be set).
3. The setting option and its setting appears on the upper and lower displays, respectively. Pressing the MENU up-arrow (∧) button displays the next setting and pressing the MENU down-arrow (∨) button displays the preceding setting (the setting last displayed takes effect. By pressing the BACK button, the setting is accepted, step 2 being restored. Repeat step 3 when necessary.

TEST PATTERN
1

Option	Settings	Function
PRINT EXECUTE	–	Starts printing with the press of the ENTER button, and ends printing with the press of the CANCEL button.
TEST PATTERN	0	0: Prints a blank page. 1 to 7: - See the next section (pattern printing) - 8 to 15: Print a blank page.
TEST CASSETTE	TRAY1	Selects a paper source Not displayed when the tray 2 is not installed. Not displayed when the tray 3 is not installed.
	TRAY2	
	TRAY3	
	MFP	
PAGE	0000	Sets the number of test copies printed
COLOR	ON	Selects color or monochrome printing. * Each color setting is provided by setting ON.
	OFF	
DUPLEX	2 PAGES STACK	Prints duplex two pages stack layout printing.
	OFF	Disables duplex printing.
	1PAGES STACK	Prints duplex one page stack layout printing.
MONO SPEED	LOW	Selects a monochrome-print speed: LOW: 30 ppm HIGH: 32 ppm
	HIGH	

- A default is in a shaded area ( ). Set settings are enabled only in this test mode (not written into EEPROM).

Note! PAGE setting: The input position is shifted with the MENU up-arrow (∧) or MENU down-arrow (∨) button. This setting is incremented by pressing the ONLINE button, and decremented by pressing the CANCEL button. Note the setting 0000 endlessly prints pages.

COLOR setting: ON displays, with the press of the ENTER button, the information shown below.

Print setting for each color: The input position is shifted with the MENU up-arrow (∧) or MENU down-arrow (∨) button. This setting is switched between ON and OFF by the press of the ONLINE or CANCEL button. The display for the setting restored to the previous one with the press of the BACK button.

COLOR	→	Y:ON M:ON
ON		C:ON K:ON

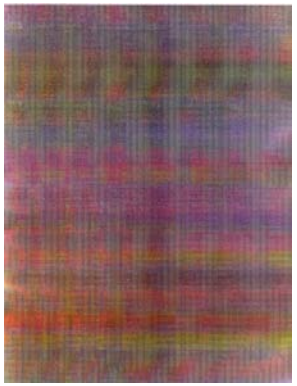
4. With PRINT EXECUTE on the lower display after the operation in step 2, pressing the ENTER button executes test printing by using the setting made in 4.2 steps 2 and 3. The test printing is cancelled by pressing the CANCEL button. When detected, an alarm shown in the Detail section of the following list is displayed on the operator panel, causing the printing to stop (refer to the operator panel display detail shown in section 5.3.2.14, where the messages displayed are different from those in PU test printing).

Panel Display Message	Detail
PAPER END SELECTED TRAY	No paper exists.
DUPLEX UNIT IS NOT INSTALLED	The duplex unit is not installed.
SELECTED TRAY IS NOT INSTALLED	The selected tray is not installed.
REMOVE PAPER OUT OF DUPLEX	An internal error of the duplex unit.
INSTALL CASSETTE TRAY OPEN	The cassette of the selected tray is slid out.

Print patterns (cannot be used for print quality checking)

0 and 8 to 15: Prints a blank page.

Pattern 1

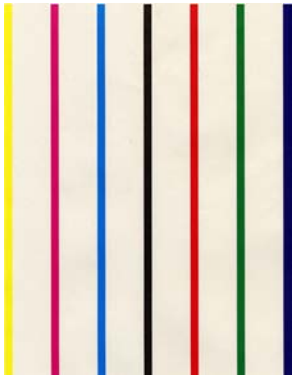


Pattern 2

Pattern 3

Pattern 4

Pattern 5



Pattern 6

Pattern 7

Note! Printing 100% of solid black print (pattern 7) contained in the local printing functions causes an offset. To prevent this, the colors to print concurrently to produce No. 7 solid print copies must be limited to two or less by making each print color settings as instructed in step 3.

- The following message appears when a test pattern is printed.

P=***
W=***

P: Number of test pages

W: Wait time

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

T=*** U=***[###]
H=***%L=***[###]

U: Three asterisks (***) identifies a measured upper heater temperature (in Celsius). Three sharp signs in square brackets ([###]) identifies a target print temperature (in Celsius).

L: Three asterisks (***) identifies a measured lower heater temperature (in Celsius). Three sharp signs in square brackets ([###]) identifies a read lower thermistor AD value (in hex).

T: A measured environment temperature (in Celsius).

H: A measured environment humidity (in percent figures).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

KTR=*.** YTR=*.**
MTR=*.** CTR=*.**

YTR, MTR, CTR and KTR indicate set transfer voltages for colors, respectively (in kV).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

KR=*.** YR=*.**
MR=*.** CR=*.**

KR: A black transfer roller resistance value (in uA).

YR: A yellow transfer roller resistance value (in uA).

MR: A magenta transfer roller resistance value (in uA).

CR: A cyan transfer roller resistance value (in uA).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

ETMP=***UTMP=***
REG=****EXT=***

ETMP: A parameter for correction of constant hopping motor speed (an environmental temperature) (in decimal).

UTMP: A parameter for correction of constant fuser motor speed (a target fusing temperature) (in decimal).

REG: A hopping motor constant-speed timer value (a set input/output value) (in hex).

EXT: A fuser motor constant-speed timer value (a set input/output value) (in hex).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

ID=****

KID, YID, MID and CID indicate image drum motor constant-speed timer values, respectively (set input/output values) (in hex).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

BELT=****
FRM [***] (xxx)

BELT: A belt motor constant-speed timer value (a set input/output value) (in hex).

FRM: Three asterisks in square brackets ([***]) identifies a read frame thermistor AD value (in hex). Three cross signs in brackets ((***)) identifies a frame temperature (in Celsius).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

DB:k**y**m**c**

DB: A developing voltage setting table identification number (in hex).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

TR1:k**y**m**c**
TR2:k**y**m**c**

TR1: A transfer voltage parameter VTR1 table identification number (in hex).

TR2: A transfer voltage parameter VTR2 table identification number (in hex).

- The above displays are switched to the following by pressing the MENU up-arrow (/\) button.

TROFF:**
BELT xxx(***)

TROFF: A transfer off voltage setting table identification number (in hex).

BELT: Three cross signs and a minus sign (xxx-) identifies a read belt thermistor AD value (in hex). Three asterisks and a minus sign (***-) identifies a belt temperature (in hex).

5. Repeat steps 2 through 4 when necessary.
6. Press the CANCEL button to end the test (the state in step 1 is restored).

5.3.2.6 Color registration adjustment test

The color registration adjustment test is used for adjusting color registration or investigating the cause(s) of color misregistration. Chapter 2 about description on color registration adjustment should be followed for recovery from an error caused by the test.

1. Enter the self-diagnostic-mode and, until the following message appears, press the MENU up-arrow (∧) or MENU down-arrow (∨) button.

REG ADJUST TEST

2. Press the ENTER button. The following message appears. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until the intended option appears.

REG ADJUST TEST
REG ADJ EXECUTE

3. Press the ENTER button. The displayed option is performed:

   When the displayed option is REG ADJ EXECUTE:

   ① Color registration adjustment test (the ONLINE lamp starts blinking) is performed.

   ② When the test ends, the upper display shows the result of the test (OK or a error name), the lower display shows '****RESULT'.

OK
REG ADJ RESULT

   Pressing the MENU up-arrow (∧) button displays the next test result. Pressing the MENU down-arrow (∨) button displays the preceding test result. Press the BACK button to return to step 2.

Remark: The following message appears while the printer is initialized or issues an alarm or when the cover is open.

NG
REG ADJ RESULT

   ③ Pressing the CANCEL button during the test cancels the test (turning on the ONLINE lamp), restoring the state of step 2.

   When the displayed option is REG ADJ RESULT:

   Same as of REG ADJ EXECUTE

   When the displayed option is BLT REFLECT TEST:

   ① Color registration adjustment belt reflection test (the ONLINE lamp starts blinking) is performed.

   ② When the test ends, the upper display shows the result of the test (OK or a error name), the lower display shows '****RESULT'.

OK
BLT REFLECT RSLT

   Pressing the MENU up-arrow (∧) button displays the next test result. Pressing the MENU down-arrow (∨) button displays the preceding test result. Press the BACK button to return to step 2.

   ③ Pressing the CANCEL button during the test cancels the test (turning on the ONLINE lamp), restoring the state of step 2.

   When BLT REFLECT RSLT is executed:

   Same as ② after execution of BLT REFLECT TEST.

Remark: The following message appears while the printer is initialized or issues an alarm or when the cover is open.

NG
REG REFLECT RSLT

4. Repeat steps 2 and 3 when necessary.
5. Press the BACK button to end the test (the state if step 1 is restored).

Color registration adjustment test item

Option	Detail
REG ADJ EXECUTE	Executes color registration adjustment.
REG ADJ RESULT	Displays the result of color registration adjustment.
BLT REFLECT TEST	Judges whether color registration adjustment belt reflection is proper.
BLT REFLECT RSLT	Displays the result of color registration adjustment belt reflection judgment.

5.3.2.7 Density adjustment test

The density adjustment test is used for performing a density adjustment function test and displaying the result of it to judge whether the density adjustment mechanism is proper. Chapter 2 about description on density adjustment should be followed for recovery from an error.

1. Enter the self-diagnostic-mode and, until the following message appears, press the MENU up-arrow (∧) or MENU down-arrow (∨) button.

DENS ADJ TEST

2. Press the ENTER button. The following message appears. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until the intended option appears.

DENS ADJ TEST
DENS ADJ EXECUTE

3. Press the ENTER button. The displayed option is performed:

When the displayed option is DENS ADJ EXECUTE:

① Density adjustment test (the ONLINE lamp starts blinking) is performed.

② When the test ends, the upper display shows the result of the test (OK or a error name), the lower display shows '****RESULT'.

OK
DENS ADJ RESULT

Pressing the MENU up-arrow (∧) button displays the next test result. Pressing the MENU down-arrow (∨) button displays the preceding test result. Press the BACK button to return to step 2.

③ Pressing the CANCEL button during the test cancels the test (turning on the ONLINE lamp), restoring the state of step 2.

When the displayed option is DENS ADJ RESULT:

Same as of REG ADJ EXECUTE

When the displayed option is DENS ADJ PAR-SET:

The setting for the density adjustment parameter is displayed.

When the displayed option is AUTO CALIBRATION:

① The density sensor sensitivity adjustment value is automatically set (the ONLINE lamp starts blinking) is performed.

② When the test ends, the upper display shows the result of the test (OK or a error name), the lower display shows '****RESULT'.

OK
DENS ADJ RESULT

Pressing the MENU up-arrow (∧) button displays the next test result. Pressing the MENU down-arrow (∨) button displays the preceding test result. Press the BACK button to return to step 2.

③ Pressing the CANCEL button during the test cancels the test (turning on the ONLINE lamp), restoring the state of step 2.

Remark: The following message appears while the printer is initialized or issues an alarm or when the cover is open.

NG
DENS ADJ RESULT

4. Repeat step 3 when necessary.
5. Press the BACK button to end the test (the state if step 1 is restored).

Density adjustment test item

Option	Detail
DENS ADJ EXECUTE	Executes density adjustment.
DENS ADJ PAR-SET	Sets a control value for auto density adjustment.
DENS ADJ RESULT	Displays the result of density adjustment.
AUTO CALIBRATION	Automatically sets a density sensor sensitivity correction value.

5.3.2.8 Consumable counter display

The consumable counter display is used for viewing the usage of consumables.

1. Enter the self-diagnostic mode and, until CONSUMABLE STATUS appears, press the MENU up-arrow (/\) or MENU down-arrow (\/) button (the MENU up-arrow (/\) button displays the next test option and the MENU down-arrow (\/) button displays the preceding test option). Then press the ENTER button.
2. Pressing the MENU up-arrow (/\) or MENU down-arrow (\/) button displays the usage of each consumable (pressing the ONLINE or CANCEL button is disabled).
3. Press the BACK button to end the option (the state in step 1 is restored).

Upper display	Lower display	Display format	Display unit	Detail
K-ID UNIT	********IMAGES	Decimal	Images	Each displays the number of turns performed by an image drum unit in three-pages-per-job printing to date after the first-time installation of it, converted on an A4 page basis.
Y-ID UNIT	********IMAGES	Decimal	Images	
M-ID UNIT	********IMAGES	Decimal	Images	
C-ID UNIT	********IMAGES	Decimal	Images	
FUSER UNIT	********PRINTS	Decimal	Prints	Displays the number of prints made to date after the first-time installation of a fuser unit.
TR BELT UNIT	********IMAGES	Decimal	Images	Displays the number of prints made to date after the first-time installation of a belt unit.
K-TONER (FULL)	********%	Decimal	%	Each displays the usage of toner of a color.
Y-TONER (FULL)	********%	Decimal	%	
M-TONER (FULL)	********%	Decimal	%	
C-TONER (FULL)	********%	Decimal	%	
M-WASTE TNR CNT	********TIMES	Decimal	Times	Each displays the amount of waste toner. * 32 times or more indicates the printer is full of waste toner.
C-WASTE TNR CNT	********TIMES	Decimal	Times	
K-STC MODE CNT	********TIMES	Decimal	Times	Each displays the print dot count of toner of a color (life counter value after the printer goes into operation).
Y-STC MODE CNT	********TIMES	Decimal	Times	
M-STC MODE CNT	********TIMES	Decimal	Times	
C-STC MODE CNT	********TIMES	Decimal	Times	
K OVER RIDE CNT	********TIMES	Decimal	Times	Each displays the extension life counter value of a toner cartridge.
Y OVER RIDE CNT	********TIMES	Decimal	Times	
M OVER RIDE CNT	********TIMES	Decimal	Times	
C OVER RIDE CNT	********TIMES	Decimal	Times	

5.3.2.9 Print counter display

The print counter display is used for viewing print counter values.

1. Enter the self-diagnostic mode and, until PRINTER STATUS appears, press the MENU up-arrow (∧) or MENU down-arrow (∨) button (the MENU up-arrow (∧) button displays the next test option and the MENU down-arrow (∨) button displays the preceding test option). Then press the ENTER button.
2. Pressing the MENU up-arrow (∧) or MENU down-arrow (∨) button displays each count printed (pressing the ONLINE or CANCEL button is disabled).
3. Press the BACK button to end the option (the state in step 1 is restored).

Upper display	Lower display	Display format	Display unit	Detail
K-IMPRESSIONS	********IMAGES	Decimal	Images	Each displays the number of each color's images printed.
Y-IMPRESSIONS	********IMAGES	Decimal	Images	
M-IMPRESSIONS	********IMAGES	Decimal	Images	
C-IMPRESSIONS	********IMAGES	Decimal	Images	
TOTAL SHEET CNT	********COUNTS	Decimal	Prints	Displays the total number of images printed.

5.3.2.10 Factory-Shipping mode switching

The Factory-Shipping mode switching is used for switching from the Factory to Shipping mode.

1. Enter the self-diagnostic mode and, until the following message appears, press the MENU up-arrow (∧) or MENU down-arrow (∨) button.

```
FACTORY MODE SET
```

2. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button. The following message appears. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until the option to set (refer to the table shown below) appears.

```
FACTORY MODE
SHIPPING MODE       *
```

3. A setting for the option can be selected by pressing the ENTER button with the option on the display.
4. Hold down the ENTER button (for three seconds) with the setting on the display. The setting is stored in the EEPROM. The state in step 2 is restored.
5. Repeat steps 2 through 4 when necessary.
6. Press the BACK button to end the option (the state in step 1 is restored).

Option	Settings	Function
FACTORY MODE	FACTORY MODE	Establishes the Factory mode (a fuse-cut disabling mode).
	SHIPPING MODE	Deselects the Factory mode to enable the fuse-cut function.
FUSE INTACT ***Note:*** Six asterisks (******) identifies INTACT or BLOWN.	BELT UNIT ******	Displays the fuse status of the transfer belt unit.
	FUSE UNIT ******	Displays the fuse status of the fuser.
	K-ID UNIT ******	Displays the fuse status of the black image drum unit.
	Y-ID UNIT ******	Displays the fuse status of the yellow image drum unit.
	M-ID UNIT ******	Displays the fuse status of the magenta image drum unit.
	C-ID UNIT ******	Displays the fuse status of the cyan image drum unit.

5.3.2.11 Self-diagnostic function setting

The self-diagnostic function setting is used for enabling or disabling the error detection by sensors. The detection can be enabled or disabled temporarily for troubleshooting. Allowing for setting engine operation options for which expert knowledge is required to be handled, this self-diagnostic should be used carefully. Be sure to restore the default settings of used options of the self-diagnostic.

1. Enter the self-diagnostic mode and, until the following message appears, press the MENU up-arrow (∧) or MENU down-arrow (∨) button.

SENSOR SETTING

2. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button. The following message appears. Press the MENU up-arrow (∧) or MENU down-arrow (∨) button until the option to set (refer to the table shown below) appears.

TONER SENSOR
ENABLE *

3. The setting on the lower display can be selected by pressing the ENTER button. The MENU up-arrow (∧) button displays the next setting and the MENU down-arrow (∨) button displays the preceding setting.
4. Hold down the ENTER button (for three seconds) with the desired setting on the display. The setting is stored in the EEPROM. The state in step 2 is restored.
5. Repeat steps 2 through 4 when necessary.
6. Press the BACK button to end setting the option (except where not in step 4) (the state in step 1 is restored).

Option	Settings	Setting Operation	Function
TONER SENSOR	ENABLE	Enables detection.	Enables or disables toner sensor operation.
	DISABLE	Disables detection.	
BELT UNIT CHECK	ENABLE	Enable checking.	Enables or disables belt installation checking operation.
	DISABLE	Disables checking.	
ID UNIT CHECK	ENABLE	Enables checking.	Enables or disables image drum installation checking.
	DISABLE	Disables checking.	
REG ADJUST ERROR	ENABLE	Has the printer to pause.	Has or does not have the printer to pause with an error due to color misregistration detection.
	DISABLE	Does not have the printer to pause.	
DRUM OVER LIFE	STOP	Does not extend life.	Sets whether to enable or disable extending image drum life at the end of the life.
	CONTINUANCE	Extends life.	
WR POINT REV TBL=**H± *.***mm	00H to FFH	A correction value.	Adds a correction value for the default writing point.
BOTTOM WRT POINT TBL=**H± *.***mm	00H to FFH	A tear-off position value.	Sets a tear-off length from the bottom edge of paper.

Default is in hatched area

5.3.2.12 LED head serial number display

The LED head serial number display is used for viewing whether downloaded data about LED heads agrees with the serial numbers marked on the LED heads.

1. Enter the self-diagnostic mode and, until LED HEAD DATA appears, press the MENU up-arrow (/\) or MENU down-arrow (\/) button (the MENU up-arrow (/\) button displays the next test option and the MENU down-arrow (\/) button displays the preceding test option). Then press the ENTER button.
2. Pressing the MENU up-arrow (/\) or MENU down-arrow (\/) button displays each of the K, Y, M and C LED head data serial numbers.
3. Press the BACK button to end the option (the state in step 1 is restored).

K ** ** ** ****
xxxxxxxxxxxxx

Nine asterisks delimited by spaces (** ** ** ***): A revision number.
Thirteen cross signs (xxxxxxxxxxxxx): A serial number.

5.3.2.13 NVRAM parameter setting

Do not use the NVRAM parameter setting.

5.3.3 Printing on stand-alone basis

C830/C821 can perform the following printing on a stand-alone-basis.

Settings	Prints information, including printer menu settings, program versions and control block configuration.
Network	Prints network-related information, including a MAC address and IP address.
Demo page	Prints demo pages.
File list	Prints a list of files stored in a file system.
PostScript font list	Prints a PostScript fonts list.
PCL font list	Prints a PCL emulation fonts list.
Print statistic results	Prints a statistic usage result. * The result is displayed when Print Statistics Menu-User Report is set to Enable.
Error log	Prints an error log.
Color profiles list	Prints a color profiles list.

Printing Procedure:

① Verify that the message stating the printer is ready to print is showing on the operator panel, and press the ENTER button to display FUNCTION

② Press the MENU down-arrow (\/) button to select the option to print printer information. Press the ENTER button.

③ Press the MENU down-arrow (\/) button to select the item to print. Press the ENTER button.

④ Press the ENTER button to print the item (the button must be pressed twice to print a demo page).

5.3.4 Functions of buttons after power-on

After the printer is turned on, buttons on the operator panel of C830/C821 function as described below. When held down until the upper and lower displays on the panel show PAM CHECK and three or four asterisks (****), respectively, the following buttons are enabled:

(1) BACK , ONLINE and CANCEL buttons

Start a CU program, starting no objects added, for example, in the download mode.

(2) MENU up-arrow (∧), MENU down-arrow (∨) and HELP buttons

Start the System Maintenance menu.

(3) BACK, MENU down-arrow (∨) and ENTER buttons

Ignoring all warnings and errors, start the printer, always placing it to an online mode.

(4) ONLINE button

Starts the printer, placing it to a mode dedicated to object downloading, such as network or USB object downloading.

(5) ENTER button

Starts the Boot menu.

(6) MENU button

Starts the Print Statistic Menu.

5.4 Setup after part replacement

The following describes the adjustments necessary after part replacement:

Replaced part	Adjustment
LED head ***Note)***	Not necessary.
Drum cartridge (yellow, magenta, cyan or black)	Not necessary.
Fuser unit	Not necessary.
Belt unit	Not necessary.
PU board	Copying information stored in EEPROM, which requires utility software.
CU board	EEPROM replacement, which uses EEPROM intended for use in a user printer.

Note) See section 4.2.6, LED Assy. for compatibility of replacement LEDs with the LEDs to be replaced with them, and identification of those LEDs.

5.4.1 Notes on engine control board replacement

1. When the EEPROM on a board to be removed can be accessed (when SERVICE CALL 104 (Engine EEPROM Error) is not displayed):

   (1) Using the PU board replacement function of Maintenance Utility (Maintenance Utility operation manual, section 2.4.1.1.1 about PU board replacement functionality), remove information from the EEPROM, and temporarily store it onto an HDD of the computer where the utility is operated.

   (2) Using the PU board replacement function of Maintenance Utility (applicable Maintenance Utility operation manual, section 2.4.1.1.1 about PU board replacement functionality), copy the information into the EEPROM on a replacement board.

   Note! When removing or writing information from/into EEPROM by using Maintenance Utility, use the procedure shown below to place the printer to the Forced ONLINE mode before accessing the EEPROM. An error message is displayed even in the forced ONLINE mode when the printer has an error.

   i. When turning on the printer, press and hold down the BACK, MENU down-arrow (∨) and ENTER buttons in combination until STATUS MODE appears on the operator panel.

   ii. When the printer operates properly, the operator panel shows ONLINE. When the printer has an error, it indicates an error, but the printer is internally online, being ready to communicate.

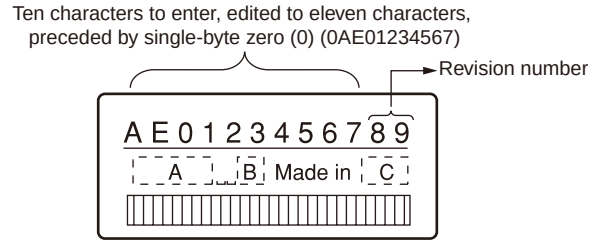
2. When the EEPROM on a board to be removed cannot be accessed:

   When SERVICE CALL 104 (Engine EEPROM Error) is displayed, or data cannot be read from the EEPROM, after replacing the board to a new one, follow the following procedure to perform operation by using Maintenance Utility:

   (1) PU serial number setting (applicable Maintenance Utility operation manual, section 2.4.1.1.2 about PU board setup)

   A SAP serial number is assigned to the printer. The number is placed at the top of the serial number label of the printer, consisting of total twelve characters -- two characters that indicates a production place, two characters that indicates a month and year, six characters that indicates a manufacture number (sequence number) and two characters that indicates revision number.

   - The PU serial number is ten characters from the SAP serial number. The rest two characters are the revision number.
   - The PU serial number is set in the PU serial number setting window described in section 2.4.1.1.2.1 of the Maintenance Utility operation manual, section 2.4.1.1.2 about PU board setup functionality.
   - To assign a PU serial number to the printer, in the PU serial number setting window, enter eleven characters, i.e. ten characters preceded by a single-byte zero (0) (note a read PU serial number is ten characters). As shown in the following serial number label example, the ten characters are the printer's the SAP serial number excluding the revision number.



Serial number label example

- The PU serial number is shown at Printer Serial Number in the header of the printer's configuration report (a Menu Map) output from the printer. After the PU serial number is changed, it can be checked by printing the report from the printer.

(2) Switching to Shipping mode

When the engine control board is replaced with a new one, the printer is placed in the Factory mode. Switch the printer to the Shipping mode.

- To switch, use the Factory/Shipping mode window described in section 2.4.1.1.2.2 of an applicable Maintenance Utility operation manual, section 2.4.1.1.2 about PU board setup functionality.

Note! Replacing the EEPROM (the engine control board) with a new one clears life information about consumables, including the belt, toner and image drums. Note that, until the consumables are replaced, this makes differences between their displayed consumed and consumed lives. Such life information cleared is as shown below. Upon replacement of the consumables, the information (counts) except Total Sheets Fed are cleared, and differences between the counts and consumed lives of the consumables are cleared.

Item	Description	Detail
Fuser Unit	A fuser life count.	A value converted on an A4 page basis from the number of pages printed to date after installation of a fuser unit.
Belt Unit	A belt unit life count.	A value converted on an A4 page basis from the number of pages printed to date after installation of a belt unit.
Image Drum Unit Black Image Drum Unit Yellow Image Drum Unit Magenta Image Drum Unit Cyan	Each the life count of the image drum unit associated with this option.	A value converted on an A4 page basis from the number of pages printed to date after installation of the image drum unit associated with this option.
Total Sheets Fed	A printer life count.	The total number of sheets fed.
Prints Black Prints Yellow Print Magenta Prints Cyan	Each the number of pages printed with the image drum associated with this option.	The number of pages printed after installation of a new image drum unit.

5.4.2 EEPROM setup after CU board replacement

The user-set information on the CU board must be maintained on the replacement CU board for the board. For operation to maintain:

① Install the EEPROM directly from the board to the replacement board (see below).

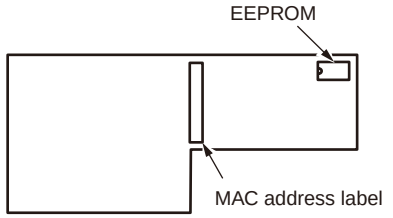
② Copy information from the EEPROM by using Maintenance Utility (see section 5.2).

Steps ① and ② cannot be used when a service call 40 (an EEPROM error) occurs. In such a case, reset network information, including an IP address, after the board is replaced with the replacement one.

EEPROM replacement after CU board replacement

The EEPROM on the CU board is installed by using an IC socket. Replace the EEPROM with new one as follows:

1. Remove the EEPROM and the MAC address label from the CU board.
2. Insert a screw driver between the EEPROM and IC socket and remove the lead of the EEPROM so as that the lead is not bent.
3. Being sure that the EEPROM and a new CU board to install it are oriented in the same direction, install the EEPROM on the new board.
4. Place the MAC address label on the new board.
5. Print a configuration report (a Menu Map) and make sure that the MAC address on the Menu Map is the same as that on the MAC address label.



5.5 Manual density adjustment setting

C830/C821 is shipped with the auto density adjustment mode enabled. When the mode is disabled by a user, the printer may print density out of adjustment while being used. Manually perform density adjustment setting when the printer prints an improper density.

Note! The setting must be performed with the printer in a static state. Do not perform it while the printer warms up.

(1) Press the MENU up-arrow (∧) or MENU down-arrow (∨) button more than one time. Press the ENTER button when Calibration appears.

(2) Press the MENU up-arrow (∧) or MENU down-arrow (∨) button to select Adjust Density Execute. Press the ENTER button.

(3) Press the ENTER button.

Auto density adjustment starts, the operator panel display providing a message stating that density is being adjusted.

5.6 Boot Menu List

To display Boot Menu, turn on the printer while holding down the Set (⏎) button.

Memo Displaying Boot Menu requires entry of a password. The password defaults to six as (aaaaaa).

Category	Option	Settings	Function
	Enter Password	**********	Enters a password to display Boot Menu. The password is six to twelve digits or lower-case alphanumeric characters and defaults to six as (aaaaaa).
Parallel Setup	Parallel	Enable Disable	Sets whether to enable or disable the parallel interface.
	Bi-Direction	Enable Disable	Sets whether to make the parallel interface bi-directional or not.
	ECP	Enable Disable	Sets whether to enable or disable the ECP mode.
	Ack Width	Narrow Medium Wide	Sets the compatible-reception ACK width. NARROW: 0.5 µs MEDIUM: 1.0 µs WIDE: 3.0 µs
	Ack/Busy Timing	Ack in Busy Ack while Busy	Sets the order of outputting compatible-reception BUSY and ACK signals.
	I-Prime	3 microseconds 50 microseconds Disable	Sets an I-PRIME signal valid time period or disable I-Prime signals.
	Offline Receive	Enable Disable	Sets whether to enable or disable the functionality that maintain a state ready for reception without changing interface signals even when an alarm is issued.
USB Setup	USB	Enable Disable	Sets whether to enable or disable the USB interface.
	Speed	480Mbps 12Mbps	Sets the maximum USB interface transmission speed.
	Soft Reset	Enable Disable	Sets whether to enable the Soft Reset command.
	Offline Receive	Enable Disable	Sets whether to enable or disable the functionality that maintain a state ready for reception without changing interface signals even when an alarm is issued.
	Serial Number	Enable Disable	Sets whether to enable or disable the USB serial number.
Security Setup	Job Limitation	Off Encrypted Job	Restricts jobs to accept, i.e. sets whether to accept only encrypted authentication jobs. This option is displayed when an optional internal hard disk is installed.
	Reset Cipher Key	Execute	Reproduces an encrypted key used for a security hard disk. When an optional internal hard disk is installed and the security hard disk functionality is enabled, this option is displayed.
Storage Setup	Check File System	Execute	Resolves a mismatch between the actual (available) and displayed available space of the file system and restores management data (FAT information).
	Check All Sectors	Execute	Restores improper HDD sector information and corrects a mismatch between the actual and displayed available space of the file system.
	Enable HDD	No Yes	When set to NO, deeming the printer with no HDDs irrespective of whether an HDD is installed on it, starts the printer when the printer cannot be started due to HDD damage.
	Erase HDD	Execute	Erases all data stored on an HDD so as that it cannot be restored. This option is displayed when an optional internal hard disk is installed.
	Enable Initialization	No Yes	Disables changes made about the internal hard disk and flash memory, involving initialization.

Category	Option	Settings	Function
Power Setup	Peak Power Control	Normal Low	Sets the control of peak low power.
	Power Save	Enable Disable	Sets whether to enable or disable the power save mode.
	USB Host Power	Off On	Sets the USB host power supplied during the power save mode.
Language Setup	Language Initialize	Execute	Erases the message file in the flash memory.

6. CLEANING

6.1 Cleaning 152
6.2 LED lens array cleaning 153
6.3 Pick-up roller cleaning 155

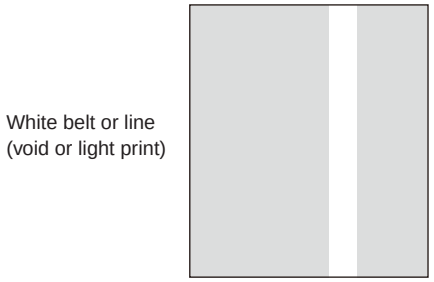
6.1 Cleaning

The inside and outside of C830/C821 must be cleaned with a waste cloth and a handy vacuum cleaner when necessary.

Note! Do not directly touch the image drum terminals, LED lens array and the LED head connectors.

6.2 LED lens array cleaning

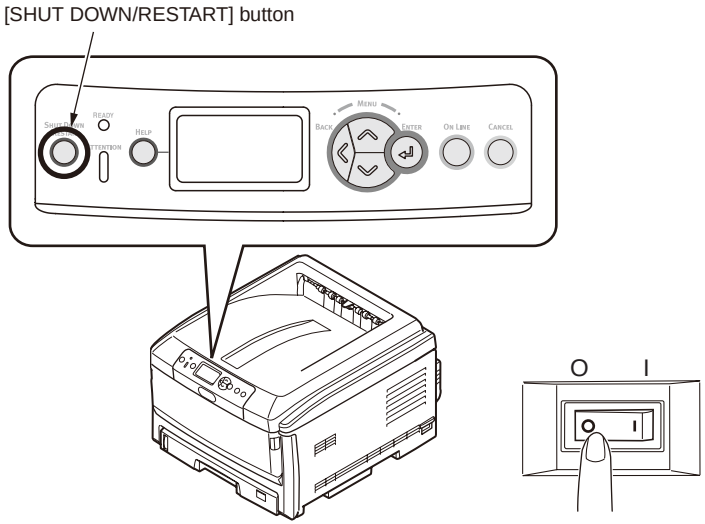
The LED lens array must be cleaned when a vertical white belt or line (void or light print) occurs.



LED head cleaning

The LED heads must be cleaned when a white line or blurred text is printed.

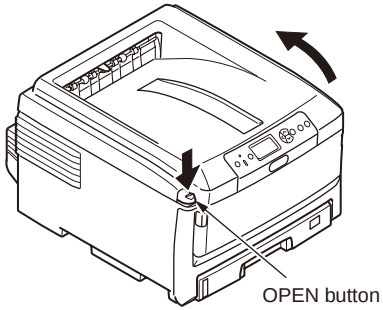
(1) Shut down and turn off the printer (the power switch to the OFF position).



(2) Press the OPEN button and open the top cover.

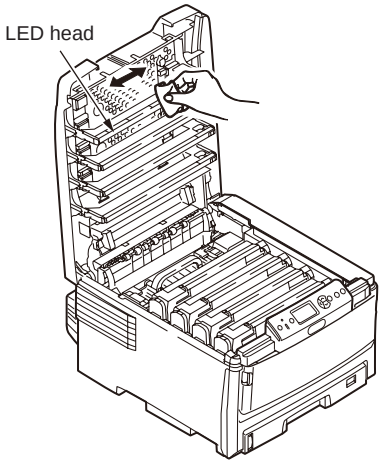
⚠Caution	Burn injury hazard.	

Do not touch the fuser unit. It is hot.

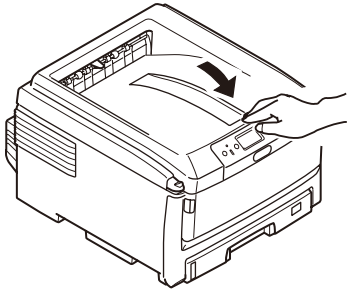


(3) Lightly wipe the (four) LED head lens surfaces with soft tissue paper.

Note! Solvents, such as methyl alcohol or thinner, damage the LED heads. Do not use them.



(4) Close the top cover.



6.3 Pick-up roller cleaning

The pick-up rollers must be cleaned when a vertical line occurs on printed output.

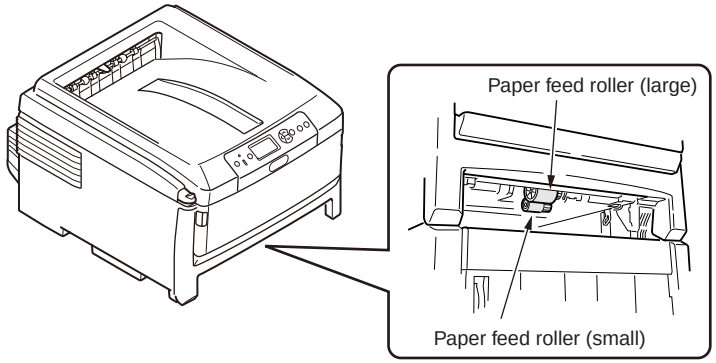
Note! Use a soft cloth to clean the pick-up rollers so as not to damage their surfaces.

Paper feed roller and pad cleaning

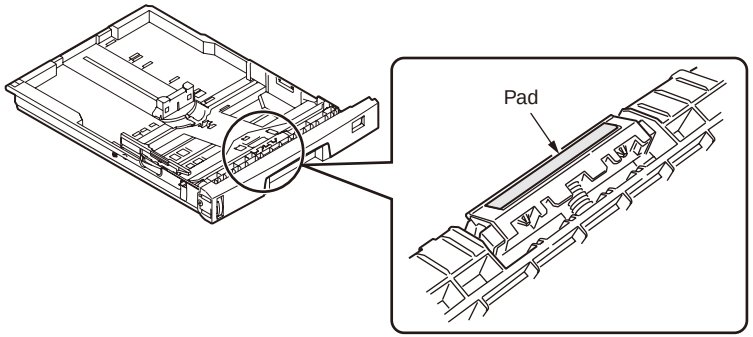
When frequent 'SLIDE OUT TRAY-PAPER JAM [tray name]' messages occur, clean the paper feed rollers and pad of the tray identified by the tray name in the message.

(1) Pull out the paper cassette of the tray being displayed.

(2) Wipe the paper feed rollers (large and small) with a cloth tightly wrung out with water.



(3) Wipe the pad of the paper cassette with a cloth tightly wrung out with water.



Note! When frequent 'OPEN COVER-PAPER JAM-FRONT COVER' messages occur, clean the paper feed roller of the multi-purpose tray in the same manner as described above.

7. TROUBLESHOOTING PROCEDURE

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7.1 Before starting the repair work

(1) Confirm the basic check/inspection points described in User's Manual.

(2) Get the information/status from client at the time when the trouble has occurred as much in details as possible

(3) Create the status close to the user's status when the trouble has occurred, and inspect a printer in that status.

7.2 Confirmation items before taking corrective action against abnormalities

(1) Is the usage environment of a printer normal?

(2) Are the consumable items (toner, drum cartridge) replaced normally?

(3) Is the print media (paper) normal? Refer to Specifications – Paper in User's Manual.

(4) Is the drum cartridge installed normally?

7.3 Precautions when taking corrective action against abnormality

(1) Do not touch the OPC drum surface with your hand or any foreign materials.

(2) Do not expose the OPC drum to the direct sunlight.

(3) The fuser unit will be hot. Do not touch.

(4) Do not expose the image drum to any light for 5 minutes or longer under the normal room temperature.

7.4 Preparation for troubleshooting

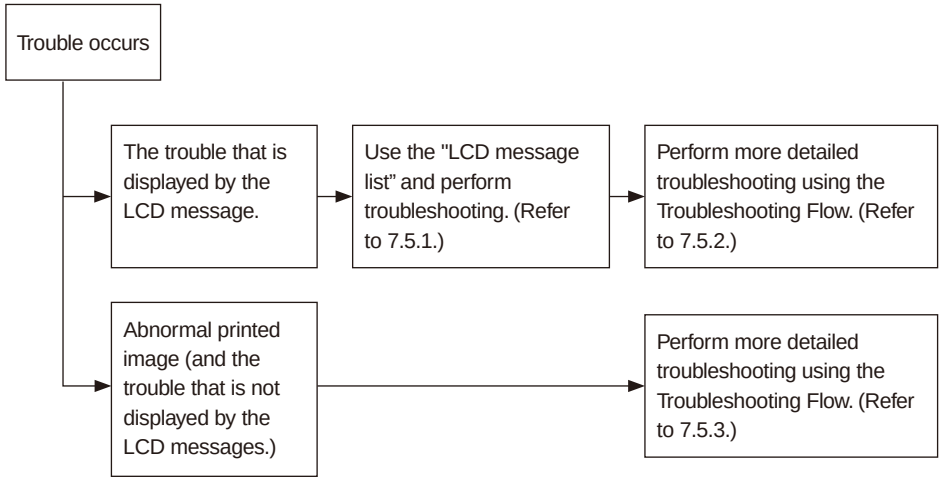
(1) Display on the Operator Panel

Error status of this printer is displayed on the LCD (Liquid crystal display) of the Operator Panel.

Take appropriate troubleshooting action in accordance with the message displayed on the LCD.

7.5 Troubleshooting method

When a trouble occurs in this printer, perform troubleshooting by following the steps described below.


Trouble occurs
The trouble that is displayed by the LCD message.
Use the "LCD message list" and perform troubleshooting. (Refer to 7.5.1.)
Perform more detailed troubleshooting using the Troubleshooting Flow. (Refer to 7.5.2.)
Abnormal printed image (and the trouble that is not displayed by the LCD messages.)
Perform more detailed troubleshooting using the Troubleshooting Flow. (Refer to 7.5.3.)

7.5.1 LCD message list

Initializing

Panel display	ON LINE lamp	Inspection lamp	Details
PLEASE WAIT	Off	Off	It is displayed until the RAM expansion of the CU program is in progress.
Initializing	Off	Off	Indicates initialization of the controller side is in progress.
EEPROM Reset	Off	Off	Indicates the controller side EEPROM is reset. The conditions for resetting the EEPROM are shown below. • CU ROM is changed (Unmatch of the CU F/W version is detected.) • Destination is changed. • Forced initialization of EEPROM (System Maintenance Menu) • Setting OEM by the PJL command.
RAM Check nnn%	Off	Off	Indicates that RAM check is in progress. Percentage of the checked capacity against the total capacity is shown in the second line.
Wait a Moment Network Initializing	Off	Off	Indicates the network initialization is in progress.
Flash Memory Format	Off	Off	Indicates that the flash memory formatting is in progress. If a resident/option flash memory that is not formatted yet is detected, it is displayed when the menu item [FLASH FORMAT] is selected from [MAINTENANCE MENU] of the System Maintenance Menu. Because the above menu item is internally use only and is not disclosed to user, this status does not occur in the user environment.
Checking File System	Off	Off	Indicates that the HDD File System is being checked. The checking process of File System is available for actuating from [Storage Setup] - [Check File System] of Boot Menu.

Panel display	ON LINE lamp	Inspection lamp	Details
Erasing Disk nnn%	Off	Off	Indicates that it is in elimination process for hard disk. The erasure process for hard disk can be actuated from [Storage Setup] of Boot Menu - [Erase HDD].
Checking Sectors nnn%	Off	Off	Indicates that the sector of HDD is being checked. The sector check process can be actuated from [Storage Setup] of Boot Menu - [Check All Sectors]
Program Update Mode	Off	Off	Indicates that the printer has entered in the dedicated mode for upgrading the NIC program (controller firmware) version. For actuating this mode is to turn on the Electric power by pressing the Online button.
Wait a Moment Program Data Received	Off	Blink	Indicates that reception of the NIC program data for upgrading is in progress.
Wait a Moment Program Data Received OK	Off	Off	Indicates that reception of the NIC program data for upgrading is complete.
Check Data Program Data Receive Error %DLCODE%	Off	On	Indicates that an error has occurred during reception of the NIC program data for upgrading. %DLCODE% 1 : Size error 2 : Checksum error 3 : Printer model number error 4 : Module I/F version error 5 : FAT version error
Wait a Moment Program Data Writing	Off	Blink	Indicates that writing of the NIC program data for upgrading is in progress.
Power Off/On Program Data Writing OK	Off	Off	Indicates that writing of the NIC program data for upgrading is in complete.

Panel display	ON LINE lamp	Inspection lamp	Details
Check Data Program Data Write Error %DLCODE%	Off	On	Indicates that an error has occurred during writing of the NIC program data for upgrading. %DLCODE% 1 : Memory allocation error 2 : Download file error 3 : Device free space acquisition error 4 : Device insufficient free space error 5 : File write error 6 : CU-F/W mismatch error
PU Flash Error	Off	Off	Indicates that the PU firmware has started up in the Loader mode. This error can occur in the user environment. If this error occurs, maintenance by a maintenance engineer is required. (Same as S/C)
Communication Error	Off	Off	Indicates that communication with the PU firmware has failed. This error can occur in the user environment. If this error occurs, maintenance by a maintenance engineer is required. (Same as S/C)
Status Mode	Off	Off	Indicates that the printer has started in the ON LINE mode always. When a printer starts up in this mode, it processes the data (job) from outside (host) even when an error occurs if a printer has entered the ON LINE mode once. Error and warning are displayed on the panel. A printer can enter in this mode if the power of a printer is turned on while pressing the button of <Enter> + <Back> + <Down> all simultaneously. Because this pattern of pressing the multiple button at the same time at power-on is not disclosed to user, this status will not occur in the user environment.

Normal

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
Ready to start printing	On	Off	Indicates that a printer is in the ON LINE status.	—
OFF LINE	Off	Off	Indicates that a printer is in the OFF LINE status. * The Ready LED is turned off all the time during OFF LINE.	To start printing from a PC, press the ON LINE button to enter the ON LINE state.
File access in progress	Varies	Varies	Indicates that access to a file system (HDD/FLASH) is under way.	—
Receiving data	Varies	Varies	Indicates that the data reception is in progress, and processing has not started yet. This error indicates during the period of PJL processing without character print, or during job through mainly.	—
Processing in progress	Blink	Varies	Indicates that data reception or output processing is progress.	—
There exists remaining data.	Varies	Varies	Indicates that the un-printed data remains in buffer. A printer is in the state of waiting for the data to receive	If a printer is stopped While indicating the state of "Remaining data exists", print the data forcibly by pressing the ON LINE button, or delete the Remaining data by pressing the CANCEL button.
Printing from %TRAY% in progress	Varies	Varies	Indicates that a printer is in the midst of printing job.	—
Printing demo page	Varies	Varies	Indicates that a printer is in the midst of printing demo page.	—
Printing setup contents	Varies	Varies	Indicates that a printer is in the midst of printing menu map.	—
Network setting is being printed.	Varies	Varies	Indicates that a printer is in the midst of printing the network setting. When the menu [Information Menu] - [Network] is selected, printing of the network setting starts.	—
Font list is being printed.	Varies	Varies	Indicates that the Font list is being printed.	—
File list is being printed.	Varies	Varies	Indicates that the File list is being printed.	—
Error log is being printed.	Varies	Varies	Indicates that the error log is being printed.	—
□ □ Gathering print iii/jjj	Varies	Varies	Indicates that a printer is in the midst of gather print. iii indicates number of copies in progress, and jjj indicates total number of printed copies. When total number of copies is 1, the normal indication of [Printing from %TRAY% in progress] is displayed.	—
□ □ Copy print kkk/lll	Varies	Varies	Indicates that a printer is in the midst of Copy printing. kkk indicates number of copies in progress, and lll indicates total number of printed copies. When total number of copies is 1, the normal indication of [Printing from %TRAY% in progress] is displayed.	—
Verification for data of encrypted authentication printing data is in progress.	Blink	Varies	Indicates the verification of the completeness (If the data is destroyed or altered) of encrypted authentication printing data is in progress.	—

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
Deleting data	Blink	Varies	Cancel of the job is indicated. A printer is discarding the data until end of the job.	—
Deleting data	Blink	Varies	This message is displayed when a jam occurs during jam recovery off. Cancel of the job is indicated. A printer is discarding the data until end of the job.	—
Deleting data	Blink	Varies	Indicates that canceling of a printing without permission is in progress. (Job Account related) 1. When a job is received from a user that is not authorized to print. 2. When a color job is received from a user that is not authorized to make a color print.	—
Deleting data	Blink	Varies	Indicates that canceling a job is in progress because the log storage area inside a printer has run out of memory space, and the operation "Cancel the job" is specified at log full. (JobAccount)	—
□ Printer is preparing.	Varies	Varies	Indicates checking of Toner cartridge is in progress.	—
□ Adjusting the fuse temperature.	Varies	Varies	Indicates that a printer is in the midst of cooling down. Note that (period) is added at the end of message “Adjusting the fuse temperature”.	—
□ Adjusting the fuse temperature	Varies	Varies	Indicates that the printer is in the midst of warming up.	—
□ Adjusting temperature	Varies	Varies	Indicates that printing is stopped temporarily due to high temperature of a drum. Alternately, this message indicates that a printer is in the standby state waiting for the thermal cooling down when switching paper size from narrow to wide.	—
□ In the power save mode	Varies	Varies	Indicates that a printer is in the power save status. When a printer enters the power save mode, the LCD backlight turns off. When it exits the power save mode, the LCD backlight turns on. If the switch is pressed while the backlight is off (in the power save mode), the backlight turns on, and then turns off in 30 seconds. However, the power save mode is not canceled. The backlight turns on during shut-down (Priority 365).	—
□ Adjusting color	Varies	Varies	Indicates that the automatic color registration correction is in progress.	—
□ Adjusting density	Varies	Varies	Indicates that the automatic density correction is in progress. The status code 10988 corresponds to the density read-out (Leisus – STSDEN #1) and 10994 corresponds to the density correction (Leisus – STSDEN #0).	—
Flash Download	Varies	Varies	Indicates that downloading of the PU firmware program data is in progress. Since downloading of the PU firmware is opened internally only and not disclosed to user, the status will not occur in the user environment.	—
□ Security kit is installed.	Varies	Varies	Indicates that security kit is being applied. After the security kit has been applied, it is generally on displaying while the printer is standby.	—

Warning

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ %COLOR% Amount of toner becomes scarce.	Varies	On (Blink) (Off)	Indicates that amount of toner becomes scarce. If the menu has been set as follows: "System Configuration Menu – "LOW TONER – PRINT CONTINUE" = Stop, the inspection LED flashes and a printer moves to the OFF LINE state. When the ON LINE button is pressed, or when an arbitrary error has occurred and the error is released, the print is continued by canceling the OFF LINE status, until TONER EMPTY is detected. When the TONER LOW status has occurred when the power is turned on, and when the menu has been set as follows: "System Configuration Menu" – "LOW TONER – PRINT CONTINUE" = Stop, the inspection LED flashes and a printer moves to the OFF LINE state at the timing when initialization has ended. When the ON LINE button is pressed, the printing can be continued until TONER EMPTY. If the menu has been set as follows: ADMIN MENU "SYSTEM CONFIG MENU" – "NEAR LIFE LED = DISABLE", the inspection LED turns off. %COLOR% Yellow Magenta Cyan Black	—
□ %COLOR% Waste toner is full. Replace the toner.	Varies	On	This warning is displayed when the cover is Opened/Closed or the power is turned OFF and back ON after the Waste Toner Full error has been issued. (Yellow and Black does not occur.) This warning is displayed in combination with the other message. While this warning is being issued, the Waste Toner Full error is issued every approx. 50 copies of printing and then the printer enters the OFF LINE stop. %COLOR% Magenta Cyan	—
□ NON OEM.%COLOR%. Toner	Varies	On	It is not the cartridge for this printer. %COLOR% Yellow Magenta Cyan Black	—
□ %COLOR% Illegal Toner	Varies	On	It is not the cartridge for this printer. %COLOR% Yellow Magenta Cyan Black	—
□ %COLOR% Cannot recognize the toner	Varies	On	It is not the cartridge for this printer. %COLOR% Yellow Magenta Cyan Black	—
□ It is PostScript Error.	Blink	Varies	Indicates that the error of PostScript inter printer has been detected.	—

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ %COLOR% Image drum is reaching near life end.	Varies	On (Off)	Indicates that the image drum is reaching near life end. Print can be continued until the image drum reaches end of life. When the menu has been set as follows: ADMIN MENU [SYSTEM CONFIG MENU] – [NEAR LIFE LED] = DISABLE, the inspection LED is turned off. %COLOR% Yellow Magenta Cyan Black	—
□ Fuser is reaching near Life end.	Varies	On (Off)	Indicates that the fuser is reaching near life end. If the menu has been set as follows: ADMIN MENU [SYSTEM CONFIG MENU"]– "NEAR LIFE LED = DISABLE", the inspection LED is turned off.	—
□ Belt is reaching near Life end.	Varies	On (Off)	Indicates that the transfer belt is reaching near life end. Because it is warning only, print is not stopped. If the menu has been set as follows: ADMIN MENU [SYSTEM CONFIG MENU] – "NEAR LIFE LED = DISABLE", the inspection LED is turned off.	—
□ Replace the fuser.	Varies	On	Indicates that the fuser had reaching end of life (warning). It is warning only. (Life end error is not issued.) This status is displayed when the cover is Opened/Closed after the Fuser Life error has been issued.	Replace the fuser with the new fuser.
□ Replace the belt.	Varies	On	Indicates that the transfer belt has reached end of life (warning). Warning only. (Life end error is not issued.) This status is displayed when the cover is Opened/Closed after the transfer belt has reached end of life.	Replace the belt unit with the new belt unit.
□ %COLOR% The printer runs out of toner.	Varies	On	Indicates that the printer runs out of toner. This status (warning) is issued when the cover is Opened/Closed once after the error is issued to recover the printer once. %COLOR% Yellow Magenta Cyan Black	Replace the toner cartridge with the new toner cartridge.
□ %COLOR% The toner cartridge is not installed in the printer.	Varies	On	Indicates that the toner cartridge is not installed. This status is warning only. %COLOR% Yellow Magenta Cyan Black	Install the toner cartridge. Be careful that the toner cartridge supplied with the product cannot be used if the toner cartridge of other supply is used.
□ %COLOR% Replace the image drum.	Varies	On	Indicates that the image drum has reached end of life. This status (warning) is issued when the cover is Opened/Closed once after the Image Drum Life end error is issued to recover the printer once. %COLOR% Yellow Magenta Cyan Black	Replace the image drum of the indicated color.

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ Belt Reflex Error	Varies	On	Belt reflectance check error Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Density Shutter Error2	Varies	Varies	Density correction shutter error 2 Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Density Shutter Error1	Varies	Varies	Density correction shutter error 1 Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Density Color Calibration Error	Varies	Varies	Density correction color calibration error Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Density Color Sensor Error	Varies	Varies	Density correction color sensor error Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ Density Black Calibration Error	Varies	Varies	Density correction black calibration error. Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Density Black Sensor Error	Varies	Varies	Density correction black sensor error. Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ %COLOR% Image Drum Smear Error	Varies	Varies	Density correction ID ERROR 2. This error occurs when abnormal density due to the LED head focus error is detected. (Extremely stained LED head) Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment. %COLOR% Yellow Magenta Cyan Black	—

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ %COLOR% Low Density Error	Varies	On	Density correction ID ERROR. This error occurs when abnormal density is detected when stain has occurred in print due to ID error. (Extremely out of focus). Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment. %COLOR% Yellow Magenta Cyan Black	—
□ Sensor Calibration Error	Varies	On	Sensor adjustment error Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment.	—
□ Registration Error <n>	Varies	On	Color registration correction error. Indicates that an error has occurred during the coarse adjustment or in the main scanning line correction. Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment. n 2=Yellow 3=Magenta 4=Cyan	—

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ Registration Sensor Error <n>	Varies	On	Color registration correction sensor error Because the PU firmware does not notice this status to the CU firmware in the Shipping Mode even when the PU firmware has detected this status, this error does not occur in the user environment. n 2=Yellow 3=Magenta 4=Cyan	—
□ %TRAY% runs out of paper.	Varies	On	Indicates that the tray runs out of paper. Warning only is issued until the tray that runs out paper is specified for print. %TRAY% Tray 1 Tray 2 Tray 3 Multi-purpose tray	Feed paper to the indicated tray.
□ The file system is full.	Varies	On	Indicates that the file system that has been constructed on the recording device (HDD/FLASH) runs out of free space. Because this is a temporary warning, this warning is indicated until the job is complete. It disappears at the completion of the job.	Explain user that no remedial measure is required.
□ Writing in the file system is prohibited.	Varies	Varies	Indicates that an attempt is made to write data in the file system that has been constructed on the recording device (HDD/FLASH), and is prohibited of writing data. Because this is a temporary warning, this warning is indicated until the job is complete. It disappears at the completion of the job.	Explain user that no remedial measure is required.

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ Job is being restricted.	Varies	On	Job is being restricted.	—
□ File is being erased.	Varies	On	Confidential file is being erased.	—
□ Encrypted authentication print job is being erased.	Varies	On	Encrypted authentication print job is being erased.	—
□ File waiting to be erased is full.	Varies	On	Confidential file waiting to be erased is full.	—
□ %PUFLASH% Error	Varies	Varies	PU flash error (Error has occurred during re-writing of the PU firmware.) %PUFLASH% is described below. PU TRAY2 DUPLEX	—
□ USB Hub cannot be used. Please remove it.	Varies	Varies	Indicates that the USB Hub not corresponded to this printer has been connected.	—
□ Un- corresponding USB peripheral has been connected. Please remove it.	Varies	Varies	Indicates that the USB peripheral not responded to the printer has been connected. During the period that the un-corresponding USB peripheral is connected, the message is displayed.	—
□ Gathering print error Press the ON LINE button.	Varies	On	Indicates that the MOPY memory is data full. This error is kept displaying until the ON LINE button is pressed.	Reduce the number of pages that are going to be printed at once.
□ Aggregated log buffer is full. Please press ONLINE button.	Varies	On	Aggregate Log Buffer is full. The error is kept displaying till the ON LINE button is pressed.	—
□ Because color print restriction has been set, monochrome printing is used. Press the ONLINE button.	Varies	On	Because color print restriction has been set, monochrome printing is used. (Relating to Job Account) The error is kept displaying till the ON LINE button is pressed.	—
□ Because color print restriction has been set, the data is deleted. Press the ONLINE button.	Varies	On	Because color print restriction has been set, the data is deleted. (Relating to Job Account) The error is kept displaying till the ON LINE button is pressed.	—
□ Because print restriction has been set, the data is deleted. Press the ON LINE button.	Varies	On	Notify user that the job is canceled because the print permission is not set. (Job Account related). This error is kept displaying until the ON LINE button is pressed.	• Set the user ID of the job account in the printer driver. • If the user ID has been set in the driver, confirm the user ID and its setting with the job account ministrator.
□ Because the log buffer is full, the data is deleted. Press the ON LINE button.	Varies	On	Notify user that the job is canceled because the log buffer is full. (Job Account related) This error is kept displaying until the ON LINE button is pressed.	Execute to [Acquire immediately] on the server PC of the print job accounting.

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ The encrypted authentication print job that has exceeded the retention term is deleted. Press the ON LINE button.	Varies	On	The encrypted authentication print job that has exceeded the retention term is deleted. The error is kept displaying till the ON LINE button is pressed.	—
□ File system access error %FS_ERR% Press the ON LINE button.	Varies	On	Indicates that a file system error other than the above-described file system related status error, has occurred. The processing that does not used the file system can be operated. %FS_ERR% =0..... GENERAL ERROR =1..... VOLUME NOT AVAILABLE =3..... FILE NOT FOUND =4.....NO FREE FILE DESCRIPTORS =5..... INVALID NUMBER OF BYTES =6..... FILE ALREADY EXISTS =7..... ILLEGAL NAME =8..... CANT DEL ROOT- =9..... NOT FILE =10... NOT DIRECTORY =11... NOT SAME VOLUME =12... READ ONLY =13... ROOT DIR FULL =14... DIR NOT EMPTY =15... BAD DISK =16... NO LABL =17... INVALID PARAMETER =18... NO CONTIG SPACE =19... CANTCHANGE ROOT =20... FD OBSOLETE =21... DELETED =22... NO BLOCK DEVICE =23... BAD SEEK =24... INTERNAL ERROR =25... WRITE ONLY	Replace the HDD. No remedial action is required when print such as authentication print is not used.

Panel display (The mark indicates no message in the upper row.)	ON LINE lamp	Inspection lamp	Details	Remedial measure
□ Invalid authentication print data has been received. Press the ON LINE button.	Varies	Varies	Because invalid authentication print data has been received, the data is deleted.	—
□ Invalid data has been received. Press the ON LINE button.	Varies	Varies	Prompt user to press the ON LINE button to disappear the warning because the printer has received an invalid data. This error is displayed when a printer has received the unsupported PDL command.	Press the ON LINE button.
Feed paper. Multipurpose tray %MEDIA_SIZE% Press the ON LINE button.	On	Off	Indicates that the print request of manual paper feed is issued. Prompt user to feed manually the paper that is indicated by %MEDIA_SIZE%. Unit of paper size in the Custom mode follows the unit specified display unit (menu setting) of the MP tray unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver. Paper size in the Custom mode is displayed as “<width> x <length> <unit>” ex: 210 x 297 mm 8.5 x 11.0 inch	Press the ON LINE button. * The data will be deleted unless the ON LINE switch is pressed within the time set by [Manual Timeout].

If a printer detects an un-recoverable error, the following service call error is displayed on the LCD.

Service call
nnn: error

Note! nnn indicates an error code.

When a service call is displayed, the error code and the associated error information are displayed in the lower row of the LCD display at the same time.

Be sure to take note of this error information (numerals indicating address and others) and inform it to the related departments because the information is used for trouble analysis and solution. Meaning of error codes and remedial measures are shown in Tables 7-1-1 and 7-1-2.

Table 7-1-1 Operator alarm

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Change paper of the %TRAY% Insert the %MEDIA_SIZE% %MEDIA_TYPE% and press the ON LINE button. For details, see on-line help.	Off	Blink	Indicates unmatch between the media type in the tray and the print data occurs. Prompt user to insert paper in the tray. Error 461: Tray 1 Error 462: Tray 2 Error 463: Tray 3 Unit of paper size in the Custom mode follows the unit specified display unit (menu setting) of the MP tray unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver. Paper size in the Custom mode is indicated as follows: “<Width> x <Length> <unit>” ex : 210 x 297 mm 8.5 x 11.0 inch User is requested to change paper of the tray and press the ON LINE button.	Error 461 462 463
Change paper of the multipurpose tray. Insert the %MEDIA_SIZE% %MEDIA_TYPE% and press the ON LINE button. For details, see on-line help.	Off	Blink	Indicates unmatch between the media type in the tray and the print data occurs. Prompt user to insert paper in the tray. Error 460: Multipurpose tray Unit of paper size in the Custom mode follows the unit specified display unit (menu setting) of the MP tray unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver. ex : 210 x 297 mm 8.5 x 11.0 inch User is requested to change paper ofthe tray and press the ON LINE button.	Error 460
Change paper size of the %TRAY%. Insert the %MEDIA_SIZE% %MEDIA_TYPE% and press the ON LINE button. For details, see on-line help.	Off	Blink	Indicates that the paper size of the tray or the paper size, and the media type do not match the print data. Prompt user to insert paper in the tray. Error 461: Tray 1 Error 462: Tray 2 Error 462: Tray 3 Unit of paper size in the Custom mode follows the unit specified display unit (menu setting) of the MP tray unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver. ex : 210 x 297 mm 8.5 x 11.0 inch User is requested to change paper of the tray and press the ON LINE button.	Error 461 462 463
Change paper size of the multipurpose tray. Insert the %MEDIA_SIZE% %MEDIA_TYPE% and press the ON LINE button. For details, see on-line help.	Off	Blink	Indicates that the paper size of the tray or the paper size, and the media type do not match the print data. Prompt user to insert paper in the tray. Error 460: Multipurpose tray Unit of paper size in the Custom mode follows the unit specified display unit (menu setting) of the MP tray unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver. ex : 210 x 297 mm 8.5 x 11.0 inch User is requested to change paper ofthe tray and press the ON LINE button.	Error 460

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Wait for a while. Message data is being received.	Varies	Varies	Indicates that the message data to be updated is being processed.	Error (ONLINE)
Wait for a while. Message data is being written.	Varies	Varies	Indicates that the message data to be updated is being written.	Error (ONLINE)
Reboot the printer. The writing of the message data is complete.	Varies	Varies	Indicates that the writing of the message data to be updated has succeeded.	Error (ONLINE)
Confirm the data. Message data writing error	Varies	Varies	Indicates that writing of the message data for upgrading has failed. %CODE% is a decimal value (single digit) indicating cause of the writing failure. =1 FAIL Cause of the failure is unknown. =2 DATA_ERROR Hash check error during data read/write. FLASH error =3 OVERFLOW Download failure because the FLASH capacity became full during writing or reading the language file. =4 MEMORY FULL Failed to secure memory space. =5 UNSUPPORTED_DATA Download of the data that is not supported by the printer.	Error (ONLINE)
Wait for a while. Network setting is being saved.	Varies	Varies	When the network related setting items are updated, contents of them are saved in the flash memory.	Error (ONLINE)
Wait for a while. Network is being initialized.	Varies	Varies	Indicates the network initialization is in progress.	Error (ONLINE)
Set in paper. %TRAY% %MEDIA_SIZE% For details please see Help.	Off	Blink	Indicates that a print request is issued to the tray that has run out of paper. Prompting user to refill paper. Error 491: Tray 1 Error 492: Tray 2 Error 493: Tray 3 Unit of paper size in the Custom mode follows the unit specified by menu unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver.	Error 491 492 493

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Set in paper. Multi-purpose Tray %MEDIA_SIZE%. Press the ONLINE button. For details please see Help.	Off	Blink	Indicates that a print request is issued to the multipurpose tray that has run out of paper. Paper feed restarts when user pressed the ON LINE button. Error 490: Multipurpose tray Unit of paper size in the Custom mode follows the unit specified by menu unless otherwise specified by driver. If unit of paper size is specified by driver, it is displayed in units specified by driver.	Error 490
Insert cassette. %TRAY%. For details please see Help.	Off	Blink	Indicates that cassette is removed from the Tray 1 or Tray 2 that is located in the path when a print from Tray 2 or Tray 3 is attempted. Error 440: Tray 1 Error 441: Tray 2	Error 440 441
Insert cassette. %TRAY%. For details please see Help.	Off	Blink	Indicates that paper feeding is not possible because cassette has been removed from the corresponding tray when a print from the tray is attempted. Error 430 :Tray 1 Error 431 : Tray 2 Error 432 : Tray 3	Error 430 431 432
Press ONLINE button for recovering. Memory overflow	Off	Blink	Indicates the data overflow exceeding the memory free space due to the following reasons. The processing is continued when the ON LINE button is pressed. Install the add-on RAM or decrease amount of data. Cause of the trouble is that the following phenomenon has occurred. - Amount of print data within a single page is too much. - Macro data is too much - Dll data is too much - Overflow after frame buffer being compressed.	Error 420

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Change the toner cartridge. %COLOR% For details please see Help.	Off	Blink	Indicates that the waster toner of %COLOR% is full requiring Replace toner.	Error
			Error 415: Magenta	415
			Error 416: Cyan	416
			(This error does not occur in the yellow and black toner.)	
			When the cover is opened/closed, it changes to the warning status making possible to perform printing of approx 50 copies.	
Change the Toner cartridge. %COLOR% For details please see Help.	Off	Blink	Indicates that the printer runs out of toner. When the cover is opened/closed, it changes to the warning status.	Error
			Error 410: Yellow	410
			Error 411: Magenta	411
			Error 412: Cyan	412
			Error 413: Black	413
Toner cartridge is incorrect. %COLOR% For details please see Help.	Off	Blink	Indicates that it is not the Toner cartridge for the use of this printer. It recovers by changing the Toner cartridge for the use of this printer.	Error
			Error 554: Yellow	554
			Error 555: Magenta	555
			Error 556: Cyan	556
			Error 557: Black	557
Toner cartridge for other company's printer use is in the printer. %COLOR%. For details please see Help.	Off	Blink	Indicates that it is not the Toner cartridge for the use of this printer. It recovers by changing the Toner cartridge for the use of this printer.	Error
			Error 614: Yellow	614
			Error 615: Magenta	615
			Error 616: Cyan	616
			Error 617: Black	617

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Toner cartridge for other company's printer use is in the printer. %COLOR%. For details please see Help.	Off	Blink	Indicates that it is not the Toner cartridge for the use of this printer. It recovers by changing the Toner cartridge for the use of this printer.	Error
			Error 620 : Yellow	620
			Error 621 : Magenta	621
			Error 622 : Cyan	622
			Error 623 : Black	623
The Toner cartridge is not genuine goods. %COLOR% Terminate the printing for protecting the printer. For details please see Help.	Off	Blink	Indicates that it is not the Toner cartridge for the use of this printer. It recovers by changing the Toner cartridge for the use of this printer.	Error
			Error 550 : Yellow	550
			Error 551 : Magenta	551
			Error 552 : Cyan	552
			Error 553 : Black	553
Toner cartridge is not set. %COLOR% For details please see Help	Off	Blink	Indicates that Toner cartridge is not installed.	Error
			Error 610: Yellow	610
			Error 611: Magenta	611
			Error 612: Cyan	612
			Error 613: Black	613
Check toner cartridge. %COLOR%	Off	Blink	Indicates that the toner sensor has detected the error.	Error
			Error 540: Yellow	540
			Error 541: Magenta	541
			Error 542: Cyan	542
			Error 543: Black	543
Pull out the Tray. Paper is left in it. %TRAY% For detail please see Help.	Off	Blink	Indicates due to occurrence of paper jam, the continuously fed paper keep remaining in the printer.	Error
			Error 631: Tray 1 cassette	631
			Error 632: Tray 2 cassette	632
			Error 633: Tray 3 cassette	633
Open the cover. Paper is remaining. Front cover For details please see Help.	Off	Blink	Indicates due to occurrence of paper jam, the continuously fed paper keep remaining in the printer.	Error
			Error 637: J0: Paper Feed Path	637

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Open the cover. Paper is remaining. Top cover For details please see Help.	Off	Blink	Indicates due to occurrence of paper jam, the continuously fed paper keep remaining in the printer. Error 638 : J0: Paper Transport Path	Error 638
Confirm the Duplex print unit. Paper is left. For details please see Help.	Off	Blink	Indicates due to occurrence of paper jam, the continuously fed paper keep remaining in the printer. Error 641: J5: Duplex Reversal Path Error 642: J3: Duplex Transport Path	Error 641 642
Check the paper. Paper size error %TRAY% For details please see Help.	Off	Blink	Informs that a paper of illegal size is fed from the tray. Check paper in the tray, or check if multiple sheets of paper are transported simultaneously by mistake or not. The recovery print is executed when the cover is Opened/Closed	Error 400
Check the paper. Multiplex error %TRAY% For details please see Help.	Off	Blink	Informs that a paper having illegally long size is fed from the tray. Check if multiple sheets of paper are transported simultaneously by mistake or not. The recovery print is executed when the cover is Opened/Closed.	Error 401
Open the cover. Paper jammed. Front cover For details please see Help.	Off	Blink	Indicates that jam has occurred during feeding paper from the MP tray. Error 390: MP Tray	Error 390
Pull out the Tray. Paper jammed. %TRAY% For details please see Help.	Off	Blink	Indicates that jam has occurred during feeding paper from the this tray. Error 391: Tray 1 Error 392: Tray 2 Error 393: Tray 3	Error 391 392 393
Open the cover. Paper jammed. Front cover For details please see Help.	Off	Blink	Indicates that jam has occurred in the paper path. Error 380: Feed	Error 380

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Open the cover. Paper jammed. Front cover For details please see Help.	Off	Blink	Indicates that jam has occurred in the paper path. Error 381: Transport Error 382: Exit Error 383: Duplex Entry Error 385: Around Fuser Unit Error 389: Printing Page Lost	Error 381 382 383 385 389
Check the Duplex print unit. Paper jammed. For details please see Help.	Off	Blink	Indicates that jam has occurred in the vicinity of Duplex unit. Error 370: Duplex Reversal Error 371: Duplex Input Error 373: Duplex Multifeed	Error 370 371 373
Open the cover. Paper jam. Front cover Fro details please see Help.	Off	Blink	Indicates that jam has occurred in the vicinity of Duplex unit. Error 372:Duplex misfeed	Error 372
Install Duplex print unit. For details please see Help.	Off	Blink	Indicates that the Duplex unit is removed. If this error is detected, printing is stopped.	Error 360
Replace the Image drum. It is lifetime of Image drum. %COLOR% For details please see Help.	Off	Blink	Inform the lifetime (Alarm) of Image drum. It shows warning status while opening or closing the cover. Error 350: Yellow Error 351: Magenta Error 352: Cyan Error 353: Black	Error 350 351 352 353
Replace the Image drum. It is lifetime of Image drum. %COLOR% For details please see Help.	Off	Blink	Inform the lifetime (Alarm) of Image drum. It shows the image till the Image drum has been replaced. Error 560: Yellow Error 561: Magenta Error 562: Cyan Error 563: Black	Error 560 561 562 563

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Replace the fuser. It is lifetime of Fuser. For details please see Help.	Off	Blink	Informs the image drum has reached end of line. This error is issued when the counter detects that the fuser has reached end of life. Print is stopped. When the cover is opened/closed, it changes to the warning status.	Error 354
Replace the Belt. It is lifetime of the Belt. For details please see Help.	Off	Blink	Informs that the transfer has reached end of line. This error is issued when the counter detects that the belt has reached end of life. Print is stopped. When the cover is opened/closed, it changes to the warning status.	Error 355
Reset the Fuser unit. For details please see Help.	Off	Blink	Indicates that an error is issued in the release position sensor of the fuser. The printer recovers from this error if the release position sensor has read out the data after the cover is closed. If the printer still cannot recover from this error, replacement of the fuser is required.	Error 348
Replace the Belt. It is lifetime of the Belt. For details please see Help.	Off	Blink	Indicates that the waster toner is full. It changes to the warning status after the cover is opened and closed only once. This error is issued again after 500 copies are printed.	Error 356
Check the Toner cartridge. The position of the level is incorrect. %COLOR% For details please see Help.	Off	Blink	Indicates that forget to lock the level of Toner cartridge. Error 544: Yellow Error 545: Magenta Error 546: Cyan Error 547: Black	Error 544 545 546 547
Reset the image drum. %COLOR% For details please see Help.	Off	Blink	Indicates that the image drum is not installed correctly.. Error 340: Yellow Error 341: Magenta Error 342: Cyan Error 343: Black	Error 340 341 342 343

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Reset the fuser. For details please see Help.	Off	Blink	Indicates that the fuser is not Installed correctly. (This error can occur when the printer temperature is below 0 degree C. Turn on the power again after the printer temperature has increased.)	Error 320
Reset the belt. For details please see Help.	Off	Blink	Indicates that the belt is not installed correctly.	Error 330
Shut off the Electric power, and wait for a while. Overheating error of Motor.	Off	Blink	Indicates the overheating of the ID motor	Error 321
Close the Cover. %COVER% For details please see Help.	Off	Blink	Indicates that the cover is open. Error 310: Top cover Error 311: Front cover	Error 310 311
Close the Cover. %COVER% For details please see Help.	Off	Blink	Indicates that the cover is open. Error 316: Duplex unit cover.	Error 316
Wait for a while. Program data is being received.	Off	Blink	Indicates that the updated NIC program data is being received.	Error
Please wait for a while. The receiving of Program data is complete	Off	Off	Indicates that the receiving of NIC program data to be updated is complete.	Error
Check the data. Program data receiving error %DLCODE%	Off	On	Indicates that error has occurred during the processing of NIC program data receiving that is to be updated. %DLCODE% 1: Size error 2: Checksum error 3: Printer model number error 4: Module I/F version error 5: FAT version error	Error

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Wait for a while. Program data is being written.	Off	Blink	Indicates that the NIC program data to be updated is being written.	Error
Reboot the printer. Writing of Program data is complete.	Off	Off	Indicates that the writing of NIC program data to be updated is complete.	Error
Check the data. Program data written error %DLCODE%	Off	On	Indicates that error has occurred during the writing of NIC program data receiving that is to be updated. %DLCODE% 1: Memory allocation error 2: Download file error 3: Device free space acquisition error 4: Device insufficient free space error 5: File write error 6: CU-F/W mismatch error	Error
Wait for a while. The printer is restarting. %CODE%	Off	On	Indicates that the controller unit is being reboot. %CODE% is a decimal value (single digit) indicating cause of the reboot. =0....Reboot that is resulted from a cause other than the below. =1....Reboot by the PJL command =2....Reboot caused by the menu change =3....Reboot based on quit operator of PostScript Language =4....Reboot caused by the network utilities (including web)	Error
The printer is shutting down.	Off	Off	Indicates that a printer is shutting down. The shut-down process is started by pressing the BACK button for more than 4 seconds upon completion of printer initialization process.	Error
Shutdown is completed. Shut off the Electric power or reboot it by restart button.	Off	Off	Indicates that the shut-down process of a printer is complete. (The LCD backlight turns off.)	Error
Shut off the Electric power and wait for a while. 126: The printer is condensing.	Off	Blink	Dew condensation error (This error is handled in the same way as the service call error though display only is different.)	Fatal 126

Display on operator panel	ON LINE lamp	Inspection lamp	Contents	Code nnn
Reboot the printer. %ERRCODE%: Error	Off	Blink	Indicates that a fatal error has occurred. For details refer to “Service call error list”.	Fatal <nnn>
Contact the Service center. %ERRCODE%: Error	Off	Blink	Indicates that a fatal error has occurred. For details refer to “Service call error list”.	Fatal <nnn>
Contact the Service center. %ERRCODE%: Error	Off	Blink	Indicates that a fatal error has occurred. For details refer to “Service call error list”. "*" indicates the detailed information of error.	Fatal 096 231 128 168 169
Power Off/On %ERRCODE%:Fatal error PC:nnnnnnnn LR:nnnnnnnn FR:nnnnnnnn	Off	Blink	Indicates that a fatal error has occurred. For details refer to “Service call error list”. "nnnnnnnn" indicates the detailed information of error.	Fatal 002 to 011, F0C F0D FFE FFF
Reboot the printer. 209: Download error	Off	Blink	Indicates failure of the Media table downloading to PU. (Custom Media Type related)	Fatal 209

Table 7-1-2 Service Call Error List

Display	Cause	Error details		Remedial measure
Contact the Service center. 001: Error	Machine Check Exception			Replace CU board
Reboot the printer. 002: Error ~ 007: Error	CPU Exception			If the RAM DIMM is installed, remove it and turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU board.
			No	Re-install the RAM DIMM. Replace the RAM DIMM.
Contact the Service center. 020: Error	CU ROM Hash Check Error			Turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU
Contact the Service center. 024: Error 025: Error	CU Font ROM Hash Check Error			Turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU
Contact the Service center. 030: Error	CU RAM Check Error			Turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU board.
Contact the Service center. 031: Error	CU Optional RAM Check Error	Is installation of the RAM DIMM normal?	No	Re-install the RAM DIMM.
		Does the printer recover from the error when the RAM DIMM is replaced?	Yes	Replace the RAM DIMM.
			No	Replace the CU board.
Contact the Service center. 036: Error	Slot1 RAM Spec Error	Is installation of the RAM DIMM normal?	No	Re-install the RAM DIMM.
		Does the printer recover from the error when the RAM DIMM is replaced?	Yes	Replace the RAM DIMM.
			No	Replace the CU board.
Contact the Service center. 040: Error	CU EEPROM Error			Turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU board.
Contact the Service center. 041: Error	CU Flash Error. Flash ROM Error on the CU board.			Turn off the power of the printer and back on.
		Does the error display recur?	Yes	Replace the CU board.
Contact the Service center. 042: Error 043: Error ~ 045: Error	Flash File System Error	Failed to access to the Flash ROM that is directly soldered to the CU board.		Turn off the power of the printer and back on. Replace the CU board.
Contact the Service center. 051: Error	CU Fan Error			
Reboot the printer. 052: Error	Image Processor Driver Error			Turn the printer power off and then back on. If the error symptom remains unchanged, replace the CU board.
Reboot the printer. 070: Error	PostScript Internal Error			Turn power to OFF/ON.
Reboot the printer. 072: Error - xx	Engine I/F Error. I/F error between PU and CU	Is the CU assembly installed normally?	No	Re-install the CU assembly normally.
		Does the printer recover from the error when the CU board is replaced?	Yes	Replace the CU board.
			No	Replace the PU Board.
Restart the printer. 073: Error xxxxxxxx	Video Error Error is detected when expanding the video data. (Illegal data is received.)	Is the CU assembly installed normally?	No	Re-install the CU assembly normally.
			Yes	Change the PC with another PC having high specifications, or alternately reduce resolution power and execute the print again.
		Does this error recur?	Yes	Replace the CU board.
				Replace the interface cable. Re-install the PC Printer driver.
		Is the CU assembly installed normally?	No	Re-install the CU assembly normally.
			Yes	Execute the print again.
		Does this error recur?	Yes	Print any other data.
		Does the error depend on print Data?	No	Replace the CU board.
			Yes	Send the data to design division and request analysis of the data.

Display	Cause	Error details		Remedial measure
Restart the printer. 074: Error xxxxxxxx 075: Error xxxxxxxx	Video Error Error is Detected when expanding the video data.	Is the CU assembly installed correctly?	No Yes	Re-install the CU assembly normally. Replace the CU board.
Contact the service center. 081: Error	Parameter integrity check	Either EEPROM or Flash ROM cannot read/write normally.		Turn the printer power off and then back on. If the error symptom remains unchanged, replace the CU board.
Contact the service center. 104: Error	Read/write error of the engine EEPROM is detected.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the PU Board.
Contact the service center. 106: Error	Engine control logic has an error.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the PU board.
Contact the service center. 111: Error	Duplex unit for other model is detected.	Is the duplex unit for that specific model installed?	No	Install the correct duplex unit.
Contact the Service center. 112: Error 113: Error	Optional tray for other model is detected.	Is the optional tray for that specific Model installed?	No	Install the correct optional tray.
Contact the Service center. 121: Error	High voltage power supply interface error.	Is the cable connecting the PU board to the high voltage unit connected normally? Have you checked defective contact of contactor points? ***Note)***	No Yes No	Re-connect them normally. Check for defective contact of the high voltage system. Replace the high voltage power supply.
Contact the Service center. 122: Error	Low voltage power supply fan error.	Is the fan (bottom right of the front) of the low voltage power supply block working? Is the fan connector connected correctly?	No Yes No Yes	Check for sure connection of the fan connector. Replace the PU board. Replace the fan motor. Replace the PU board.

Display	Cause	Error details		Remedial measure
Contact the Service center. 123: Error	Environment humidity is abnormal./ Humidity sensor is not connected.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the control panel board.
Contact the Service center. 124: Error	Environment temperature is abnormal.	Does this error recur?	Yes	Turn off the power of the printer and back on. Replace the control panel board.
Shut off the electric power and wait for a while. 126: The printer is condensing.	Dew condensation of the printer is detected.	This error can easily occur when a printer is brought in to indoor from outdoor. Leave the printer for 2 hours or half day under room temperature, and turn on the power again. Does this error recur?	 Yes	After leaving a printer under room temperature, turn on the power again. Replace the control panel board.
Contact the Service center. 127: Error	Fuser exhaust fan error	Is the fan connector connected normally? Does this error recur?	No Yes No	Re-connect it normally. Replace the fan motor. Replace the PU board.
Contact the Service center. 128: Error	ID cooling fan error	Is the fan connector connected normally? Does this error recur?	No Yes No	Re-connect it normally. Replace the fan motor. Replace the PU board.
Contact the Service center. 131: Error ~ 134: Error	LED head detection error (131=Y, 132=M, 133=C, 134=K)	Is the LED head connected normally? Is the LED HEAD fuse brown? Does this error recur?	No Yes Yes No Yes	Install the LED head unit normally. Check the LED HEAD fuse. After checking fuse Turn on the power again. For the method of checking the LED head unit fuse, refer to section 7.6.
Contact the Service center. 142: Error	ID Up/Down position detection error.	Is the ID unit caught by anything when it is removed and re-installed? Does this error recur?	Yes No Yes	Re-install the ID unit. Turn on the power again. Replace the ID UP/ DOWN sensor.

Display	Cause	Error details		Remedial measure
Contact the Service center. 150: Error ~ 153: Error	The ID unit fuse has blown out. (150=Yellow, 151=Magenta, 152=Cyan, 153=Black)	Is the ID unit installed normally?	No	Re-install the ID unit.
			Yes	Turn on the power again.
		Does this error recur?	Yes	After checking for the sure connection of the cable between PRZ board and PU board, replace the PRZ board.
		Does the printer recover from the error when the PU/PRZ board is replaced?	No	Replace the PU board.
Contact the Service center. 154: Error	The belt unit fuse has blown out.	Is the belt unit connected normally?	No	Re-install the belt unit.
			Yes	Turn on the power again.
		Does this error recur?	Yes	After checking for the sure cable connection, replace the PU board.
Contact the Service center. 155: Error	The fuser unit fuse has blown out.	Is the fuser unit installed normally?	No	After cleaning the connecting connector of the fuser unit, re-install the fuser unit.
			Yes	Turn on the power again.
		Does this error recur?	Yes	After checking for the sure cable connection, replace the PU
Contact the Service center. 160: Error ~ 163: Error	Toner sensor detection error. (160=Y, 161=M, 162=C, 163=K) This error does not occur with the default settings.	Is the toner cartridge installed?	No	Install the toner cartridge.
		Is the lock lever of the toner set?	No	Rotate the lock lever of toner to the lock position. Turn on the power again.
		Does this error recur?	Yes	Replace the toner sensor assembly.
Contact the Service center. 167: Error	Thermistor Slope Error	Is the error message displayed?		Turn on the power again.
		Does this error recur?	Yes	After leaving the printer for 30 minutes, turn on the power again.
Contact the Service center. 168: Error	Compensation Thermistor Error	Is the error message displayed?		Turn on the power again.
		Does this error recur?	Yes	After leaving the printer for 30 minutes, turn on the power again.

Display	Cause	Error details		Remedial measure
Contact the Service center. 169: Error	Upper side Thermistor Error	Is the error message displayed?		Turn on the power again.
		Does this error recur?	Yes	After leaving the printer for 30 minutes, turn on the power again.
Contact the Service center. 170: Error 171: Error ***Note)***	Short-circuit or open-circuit of fuser thermistor is detected.	Does this error recur?		Turn on the power again.
			Yes	Replace the fuser unit.
Contact the Service center. 172: Error 173: Error	The fuser thermistor has detected an abnormal temperature (high temperature or low temperature.)	Does this error recur?	Yes	Turn on the power again.
				Replace the fuser unit.
		Does this error recur?	Yes	Replace the low voltage power supply unit.
Contact the Service center. 174: Error	The backup roller thermistor is detected of its short-circuit. (At high temperature)	Does this error recur?	Yes	Turn on the power again.
				Replace the fuser unit.
Contact the Service center. 175: Error ***Note)***	The backup roller thermistor is detected of its open-circuit. (At low temperature)	Does this error recur?	Yes	Turn on the power again.
				Replace the fuser unit.
Contact the Service center. 176: error 177: error	The backup roller thermistor has detected an abnormal temperature (high temperature or low temperature.)	Does this error recur?	Yes	Turn on the power again.
				Replace the fuser unit.
		Does this error recur?	Yes	Replace the low voltage power supply unit.

Display	Cause	Error details		Remedial measure
Contact the Service center. 181: error 182: error 183: error	Option unit I/F error (181=Duplex Unit, 182=2nd Tray, 183=3rd Tray)	 Does this error recur? Does this error recur?	 Yes Yes	Turn on the power again. Check for sure connection of the connectors. Replace the option unit.
Contact the Service center. 190: Error	System memory overflow	 Does this error recur?	 Yes	Turn on the power again. Increase the add-on RAM DIMM.
Contact the Service center. 200: error ~ 202: error	PU Firmware Download Error	Error has occurred during rewriting of the PU firmware.		After turning on the power again, perform downloading again. (This error does not occur during the normal operation because this processing is not carried out.)
Reboot the printer. 209: Download error	Custom Media Type table downloading has failed.	Custom Media Type table downloading has failed.		After turning on the power again, perform downloading again. (This error does not occur during the normal operation because this processing is not carried out.)
Reboot the printer. 203: error 204: error 207: error 208: error 213: error 214: error FOC: error FOD: error FFF: error	CU program error (Mentioned any error numbered from 203 to 214 does not occur under normal operation.)	Illegal processing is executed by the CU program.		After turning off the power, check the normal connection between CU board and PU board. Then, turn on the power again.
Contact the Service center. 230: error	RFID Reader not Instaled	RFID read device error Does this error recur?	Yes Yes	Check the normal connection of RFID R/W board. Replace the RFID R/W board. Replace the P6X board.

Display	Cause	Error details		Remedial measure
Contact the Service center. 231: error	RFID reader I/F error	Interface error with the RFID reader is detected. 01: Communication error between the RFID reader and the engine circuit boards. 02: Error in the wireless circuit of the RF ID reader 03: Communication error between the RFID reader and the tag chip. 04: Error is detected in the RFID tag chip. (In more than 4 chips)		01: Same as the error no. 230 02: Replace the RFID R/W board. 03: Check for normal connection of the antenna cable. 04: Check if quantity of the RFID Tag is correct or not.
Reboot the printer. 250: Error	The erasing error of encrypted file has been detected.	Has the User known that HDD ERASE is performed?	Yes	Inform the User that it is necessary to perform Disk ERASE and revert the HDD as the purchasing status in order to delete the encrypted file. (ADMIN MENU HDD ERASE)
Contact the Service center. 251: Error	Secure Disk Erasing Error	Error has been detected in the Disk ERASE. Does the error display recur?	 Yes	Electrical power OFF/ON Replace HDD
Contact the Service center. 252: Error 253: Error	Disk Security Mode Error			Install hard disk that has been connected while introducing the security kit.
Contact the Service center. 254: Error	Disk Security Mode Error	Does the error display recur?	Yes	Turn the power OFF/ON. Regenerate the encrypting mode. If it still does not improve the situation, change the CU board and encrypted hard disk.
Contact the Service center. 255: Error	Disk Security Mode Error			Only change the encrypted board.
Contact the Service center. 256: Error	Disk Security Mode Error			Install genuine hard disk.

Display	Cause	Error details		Remedial measure
Contact the Service center. 257: Error	Disk Security Mode Error		Yes	Turn the power OFF/ON. Execute the re-formation of hard disk. If it still does not improve the situation, change the hard disk.
Reboot the printer. 901: error ~ 904: error ***Note)***	Abnormal temperature of belt 901: Shortcircuit 902: Open circuit 903: High temperature 904: Low temperature	Is the cable from belt thermistor to the high voltage board connected normally? Does this error recur?	No Yes No	Re-connect the cables normally. Turn on the power again. Replace the belt thermistsor.
Reboot the printer. 918: error	Duplex FAN Alarm Detection	Fan error inside the duplex unit. Does the error recur when the power is turned off once and back on? Does the error recur when the power is turned off once and back on?	 Yes Yes	Check if the Duplex unit is installed normally or not. Check if the fans are installed normally or not. Replace the fan.
Reboot the printer. 923: error	Black image drum lock error	The K ID does not rotate normally. Does the error display recur when the power is turned off once and back on?	 Yes Yes	Check if the KID is installed normally or not. Replace the K ID unit. Replace the K ID motor.
Reboot the printer. 928: Error	Fuser motor lock error	Fuser does not rotate normally. Does this error recur? Does this error recur?	 Yes Yes	Check if the fuser is installed normally or not. Replace the fuser. Replace the fuser motor.
Contact the Service center. 980: error	Media wrapped around the fuser error	Media has wrapped around the fuser.		Turn off the power. Replace the fuser.
Contact the Service center. 983: error	Error due to Detection of the Toner cartridges of the same color	Two or more toner cartridges of the same color are detected.		Install the cartridge of the specified in the specified position.

Display	Cause	Error details		Remedial measure
Contact the Service center. 984: error ~ 987: error	Mismatch of Toner cartridge 984:Black 985:Yellow 986:Mangeta 987:Cyan	Unsupported toner cartridge has been detected.		Change to correct toner cartridge.
WDT ERROR	PU firmware runaway	Does this error recur?	Yes	Turn on the power again. Replace the PU board.
ASIC ERROR	CU board (CU) DCON access error * DCON clock output abnormity	Does this error recur? Does this error recur?	Yes Yes	Turn on the power again. Replace the CU board. Replace the PU board.
SDRAM ERROR	CU board (CU) DCON access error * RAMRD/WR abnormity for VIDEO	Does this error recur? Does this error recur?	Yes Yes	Turn on the power again. Replace the CU board. Replace the PU board.
ABORT xxx = xxxxxxxx	PU firmware runaway	Does this error recur?	Yes	Turn on the power again. Replace the PU board.
IRQXX_IPT	PU firmware runaway	Does this error recur?	Yes	Turn on the power again. Replace the PU board.

Note) Service calls 168 error, 171 error, 175 error, 903 error and 904 error; These errors can occur when the printer temperature is below 0 °C. Turn on the power again after the printer temperature has increased

7.5.2 Preparation for troubleshooting

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(7-1) Paper unloading jam occurs immediately after the power is turned on. 198
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Note! When replacing the PU board, read the EEPROM chip contents of the old board first, and copy them to the new board upon completion of the replacement. (Refer to section 5.4.1 Precautions when replacing the engine control board.)

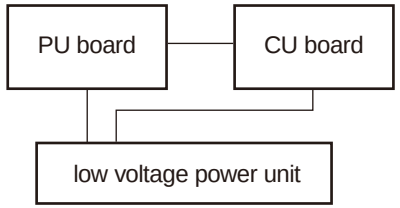
7.5.2.(1) LCD display error

Memo For the numbers from ① to ㉖ after the name of the respective connectors, refer to section 7.5.2 (19) "Wiring diagram".

(1-1) LCD does not display anything.

Check item	Check work	Action to be taken at NG
(1-1-1) Check the fuse.		
F2 (fuse) of the PU board	Check if F2 has blown out or not.	Replace F2 or the PU board.
(1-1-2) Check the system connection		
Connection between the low voltage power supply unit and the PU or CU board.	Check if the cable from the low voltage power supply to the POWER connector ⑩ of the PU board is normally connected or not. Check if the connector is connected only in the half-way or not, and check if the connector is inserted in slanted angle or not.	Re-connect the cable normally.
Cable assembly connecting the low voltage power supply unit and the PU board.	Check if the cable is half-open circuit. Check if sheath of the cable has not peeled off or not. Check if the cable assembly is defective such as internal wires are disconnected or not.	Replace the cable with the normal cable. ***Note!***
Connection between the PU board and Operator Panel	Check if the 10-conductor FFC is connected to the OPE connector ⑰ of the PU board normally or not. Check if the 10-conductor FFC is connected to the OPE connector ⑲ of the PU board normally or not. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not.	Re-connect the cable normally.
FFC connecting the PU board and the Operator Panel board	Check if the cable has open circuit or not with VOM. Check if sheath of the cable has not peeled off or not by visual inspection.	Replace the FFC with the normal FFC.
FFC connecting the PU board and the CU board	Check if the 16-conductor FFC is connected to the CU IF connector ⑨ of the PU board normally or not. Check the CU board side in the same way.	Replace the low voltage power supply. ***Note!***
(1-1-3) Check the peripherals of the power supplies		
Primary AC power source that is connected to the printer.	Check the supplied voltage of the AC power source.	Supply the AC power.
Voltage setting of the lower voltage power supply unit (100V system/230V system)	Measure the AC voltage supplied. Check the power voltage setting of the equipment in use. (Check the shorting plug that is used for selection of the voltage power supplies.) Shorting plug is Used/Not used = 100V system/ 230V system.	Set the low voltage power supply setting.
5V power that is supplied to the PU board.	Check for the 5V power supply at pin-7 of the POWER connector ⑩ of the PU board.	Replace the low voltage power supply.
3.3V power that is supplied to the Operator Panel.	Check for the 3.3V power supply at pin-10 of the CN connector ⑲ of the Operator Panel board.	Replace F2 or the PU board.
(1-1-4) Check that power supply circuit has no short-circuit.		
5V power and 24V power that are supplied to the PU board.	Check that power supply circuit has no short-circuit at the POWER connector no. 10 of the PU board. The follow voltage must appear respectively. pins-4, 5 and 6: 24V pin-7: 5V pin-8: 0VL pins-1, 2 and 3: 0VP If any voltage does not appear and short-circuit is detected, locate the source of the short-circuit as follows: Disconnect the cables that are connected to the PU board one cable after another until location of the short-circuit is found out.	Replace the part causing short-circuit.

Note! If the PU board, the CU board and the low voltage power unit are connected one another differently from the picture given below, it is regarded as an abnormal, and the output from the low voltage power unit stops.
When the output from the low voltage power unit stops, turn off the power switch, wait about one minute, and then turn on the power switch, otherwise, the alarm condition of the stoppage of the power output is not cleared.



Check item	Check work	Action to be taken at NG
(1-1-5) LSI operation check		
I/F signal supplied from the PU board to the Operator Panel board.	Check if the signal is output to the OPE connector ⑰ of the PU board or not. Pin-7: Send data (Sending data from the PU board) Pin-9: CLR If it is normal, the signal is output always.	Replace the PU board.
I/F signal supplied from the PU board to the Operator Panel board.	Check if the signal is output to the OPE connector ⑰ of the PU board or not. Pin-6: Send data (Sending data from the PU board) If it is normal, the signal is output always.	Replace the Operator Panel board.

Note) However, for the Data Protection Kit –A3, refer to section 7.8.

(1-2) PLEASE WAIT

(If the message is left attended, the error number changes to “COMMUNICATION ERROR”.)

Check item	Check work	Action to be taken at NG
(1-2-1) Check installation condition of printed circuit board		
Connection condition of the PU board and CU board	Check the connection condition of the CU IF connector ⑨ of the PU board, and check that of the FFC connector of the CU board.	Connect the FFC normally.
(1-2-3) Implement version upgrade of the PU firmware		
Version upgrade of the PU firmware	When the PU firmware version upgrade is completed, this display appears. Check the PU firmware version number by using the menu print or the maintenance function.	If the message reappears after the power is re-started again, implement the confirmations of sections (1-3-1) and (1-3-2).

(1-3) Error messages related to Operator Panel are displayed.

Check item	Check work	Action to be taken at NG
(1-3-1) Error message		
Error message	Check the error contents by referring to the Error Message List.	Follow the instruction.

(1-4) Displaying as “RAM check” or “Initializing”.

Check item	Check work	Action to be taken at NG
(1-4-1) Operator Panel display freezes.		
Operator Panel display	Keep displaying “RAM Check" or "Initializing".	Replace the ROM DIMM of CU, or replace the CU board. Remove the optional RAM and HDD. Then perform the check. If the check result shows NG, replace the CU board. ***Note!***

7.5.2.(2) Abnormal operations of printer after the power is turned on

(2-1) Any operation does not start at all.

Check item	Check work	Action to be taken at NG
(2-1-1) Check the peripherals of the power supplies		
Primary AC power source that is connected to the printer.	Check the supplied voltage of the AC power source.	Supply the AC power.
Voltage setting of the lower voltage power supply unit (100V system/230V system)	Measure the AC voltage supplied. Check the power voltage setting of the equipment in use. (Check the shorting plug that is used for selection of the voltage power supplies. [CN6]) Shorting plug is Used/Not used = 100V system/ 230V system.	Set the low voltage power supply setting.
5V power and 24V power that are supplied to the PU board.	Check the power supply voltages at the POWER connector no. 10 of the PU board. The follow voltage must appear respectively. Pins-4, 5 and 6: 24V Pin-7: 5V Pin-8: 0VL Pins-1, 2 and 3: 0VP	Replace the low voltage power supply.
(2-1-2) Check the system connection		
Connection condition of Operator Panel	Check contents of (1-1). Any operation of a printer will not start until the Operator Panel is detected and is started of its operation.	Follow the contents of (1-1).

(2-2) Abnormal sound is heard.

Check item	Check work	Action to be taken at NG
(2-2-1) Check loss of synchronization of motor (Driver error)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzzer" sound when an error occurs.	Replace the PU board.
Condition of the motor cable	Check for normal wiring conditions of the respective motors. Perform the visual check and measure resistance at open circuit with VOM as follows. Remove the motor cable at the board end. Measure resistance between the respective pins of the removed cable and FG with VOM.	Replace the motor cable. Re-connect the cable for normal conditions.
(2-2-2) Check loss of synchronization of motor (Abnormal load of the consumable item)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzzer" sound when an error occurs.	Replace the corresponding consumable item. If any attempt of using new part as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

Check item	Check work	Action to be taken at NG
(2-2-3) Check the jumping phenomena of gear tooth. (Abnormal load of the consumable item)		
Operating conditions of the respective motors	Check if operations of the respective motors are normal or not by using the self-diagnostic mode. Check if any load exists or not. "Buzz buzz" sound is generated when an error occurs.	Replace the corresponding consumable item. If any attempt of using new part as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installation condition of each consumable item	Check by visual inspection if the respective consumable items are installed in their normal positions in which gears of the consumable items engage accurately or not.	Replace an appropriate mechanical part as required, or adjust or repair
(2-2-4) Check the wiring conditions of cables		
Wiring conditions of the cables in the vicinity of the respective cooling fans	Check if the cable contacts with the fan blade because wiring conditions of the cables near fan is poor or not. "Clap, clap" sound is generated when an error occurs.	Correct the wiring conditions of the cable.
(2-2-5) Check installation condition of mechanical parts		
Check the installation conditions of the partition plate under the CU and PU boards.	Remove the CU and PU board, and inspect the installation conditions of the partition plate by visual inspection.	If they are not hooked on the normal specified positions, correct them.

(2-3) Bad odors are generated.

Check item	Check work	Action to be taken at NG
(2-3-1) Locating the exact position of generating bad odor		
Fuser unit	Remove the fuser unit and check the odor.	Implement section (2-3-2).
Low voltage power supply unit	Remove the low voltage power supply unit and check the odor.	Replace the low voltage power supply unit
(2-3-2) Check conditions of the fuser unit		
Life count of fuser unit	Check the life count of the fuser unit by using the self-diagnostic mode.	The fuser close to the new fuser unit smells some odors.
Check that no foreign material exists in fuser unit.	Check that no foreign materials such as paper are stuck inside of the fuser unit.	Remove the foreign material.

(2-4) Rise-up time is slow.

Check item	Check work	Action to be taken at NG
(2-4-1) Check the fuser unit		
Halogen lamp	Check that 100V is shown on the label on the rear of the fuser unit.	Replace the fuser unit.
(2-4-2) Check the optional parts ***Note!***		
Add-on memory	Install the optional parts (add-on memory) again and re-check the operations.	Replace the optional part.
HDD	Install the optional part (HDD) again and re-check the operations.	Replace the optional part.
Data Protection Kit -A1	Refer to section 7.8.	

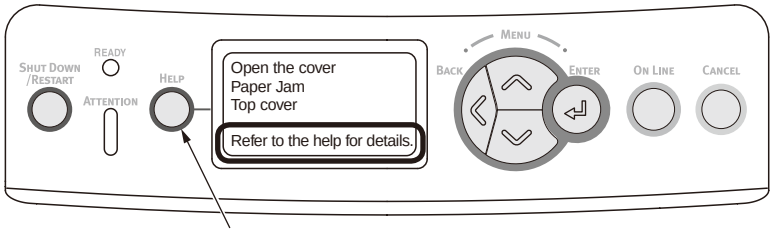
Note! If any troubles such as printer does not start up normally occurs, remove the CU options (RAM, HDD) and check if the trouble symptom changes or not.

(3) Paper Jams

When paper jams occur or paper remains in the printer, "Paper Jam", or "Paper Remain" is displayed on the operation panel.

By pressing the Help button, a method to remove the paper is displayed, remove the paper in the printer according to [Handling].

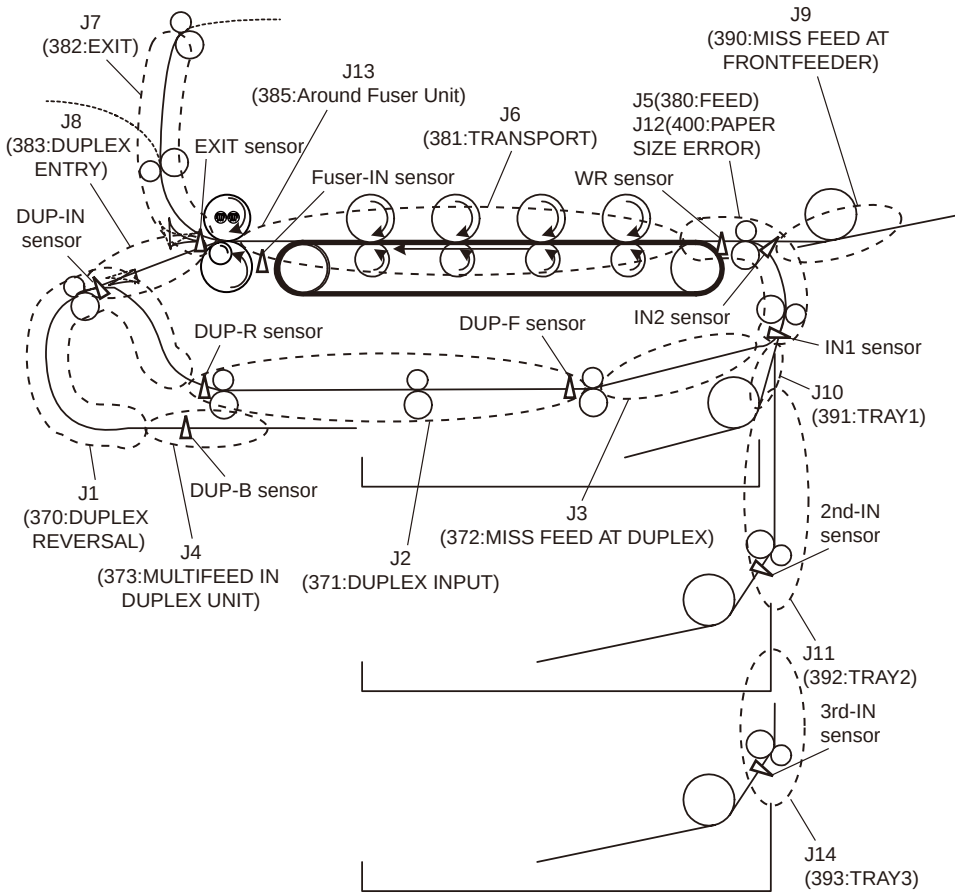
In addition, A method to remove paper is also described in the reference page at the right table.



By pressing this button, a method to remove paper is displayed.

Message to be displayed	Reference page
Pull the tray. Paper Jam [Tray Name]	Page 185
Pull the tray. Paper Remains. [Tray Name]	
Open the Cover. Paper Jam Front Cover	Page 186
Open the Cover. Paper Remains. Front Cover	
Open the Cover. Paper Jam Top Cover	Page 187
Open the Cover. Paper Remains. Top Cover	
Check the duplex unit. Paper Jam	Page 190
Check the duplex unit. Paper Remains.	

JAM location of occurrence outline chart

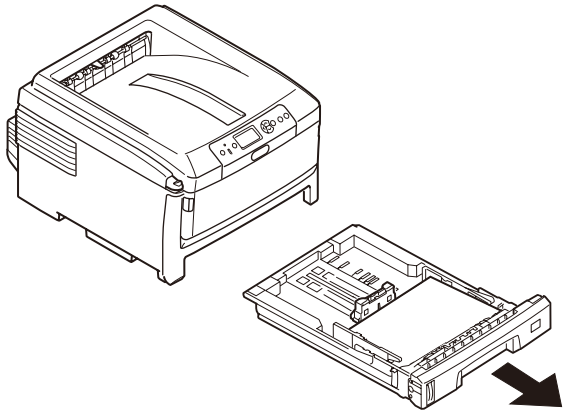


Pull the tray. Paper Jam [Tray Name]	Pull the tray. Paper Remains. [Tray Name]

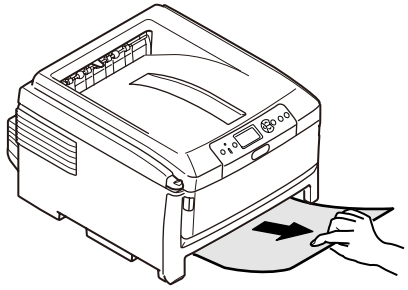
When the above messages are displayed.

Tray1 is applied here as an example.

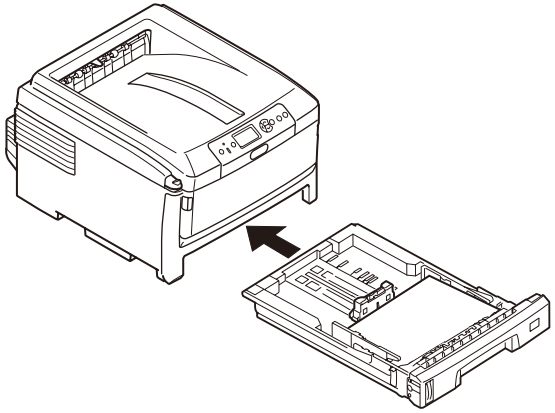
(1) Pull the displayed tray.



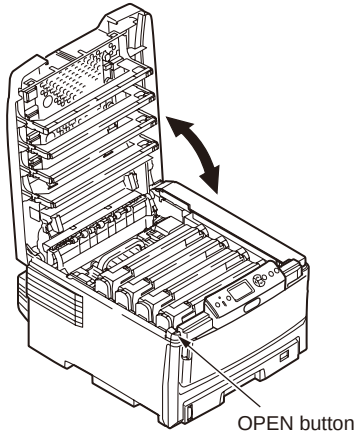
(2) Remove paper.



(3) Return the tray to the printer.



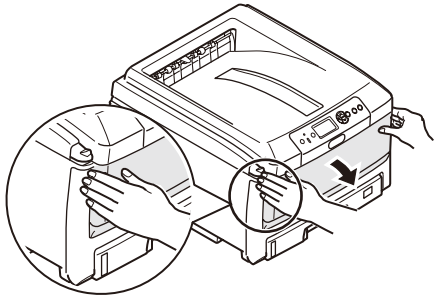
(4) Open and close the top cover.



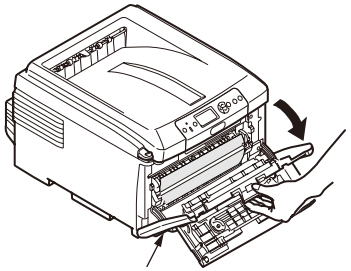
Open the Cover. Paper Jam Front Cover	Open the Cover. Paper Remains. Front Cover

When the above messages are displayed.

(1) Open the multipurpose tray.

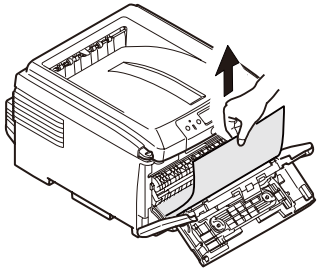


(2) Push up the center handle (blue), to open the front cover.

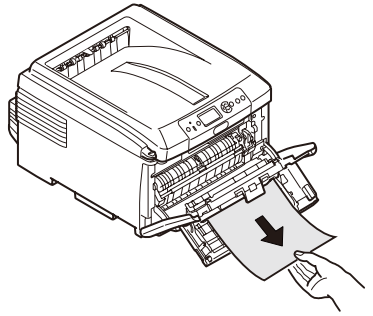


(3) Slowly pull out the jammed paper.

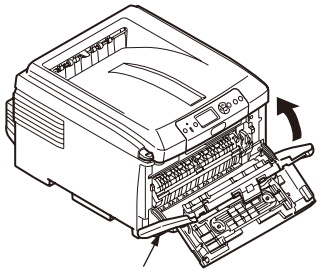
① If you see the top edge of paper



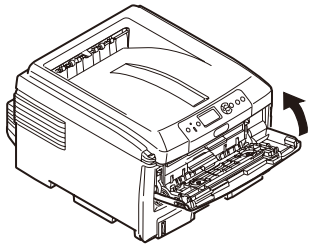
② If you do not see the top edge of paper



(4) Close the front cover.



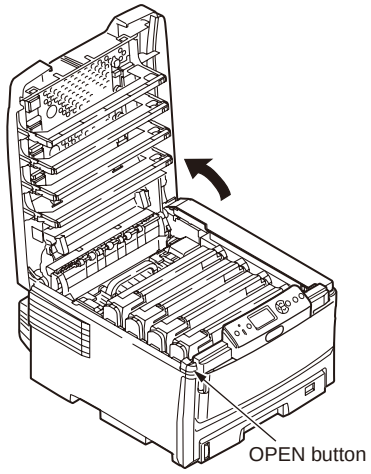
(5) Close the multipurpose tray.



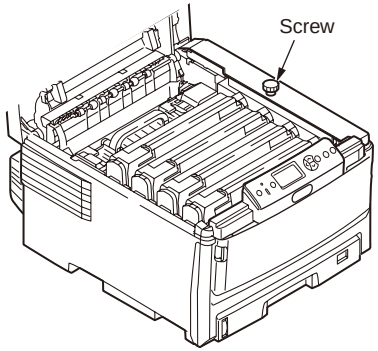
Open the Cover. Paper Jam Top Cover	Open the Cover. Paper Remains. Top Cover

When the above messages are displayed.

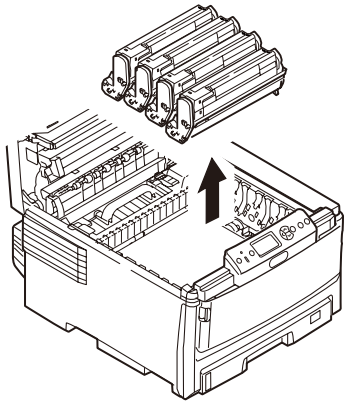
(1) Open the top cover.



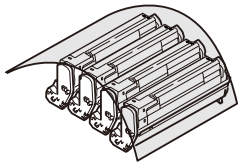
(2) Touch the screw with a hand to discharge static.



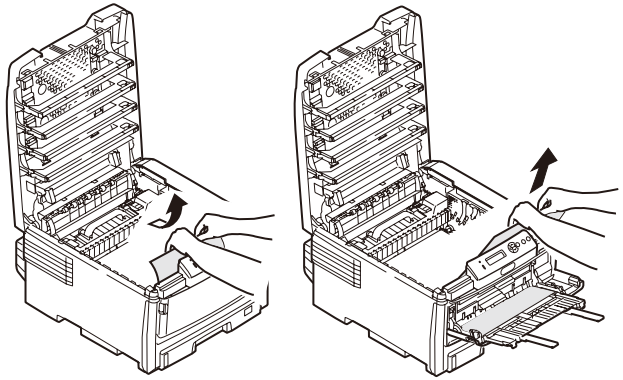
(3) Uninstall the four image drum cartridges and put them on a flat table.



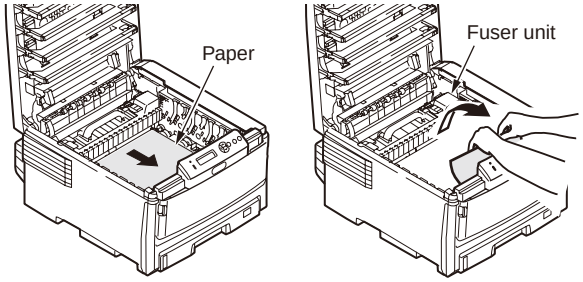
(4) Cover the uninstalled image drum cartridges with black paper.



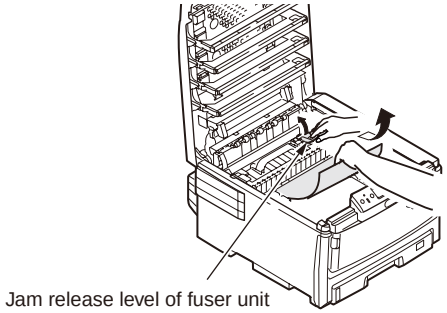
(5) (a) If you see the top edge of paper, pull out the jammed paper slowly.



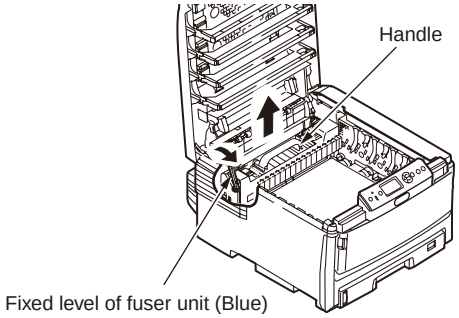
(b) If you do not see the top edge or the bottom edge of jammed paper, pull out the jammed paper slowly while heaving it.



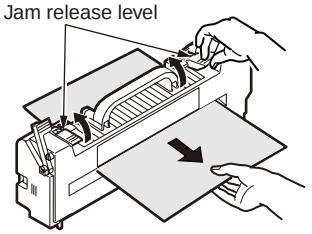
(c) If you see the bottom edge of the jammed paper pull out the jammed paper, slowly while pulling up the jam release lever of the fuser unit.



(d) If f paper is jammed in the fuser unit, bending down the fixed lever (Blue) to the front side, remove the fuser unit.

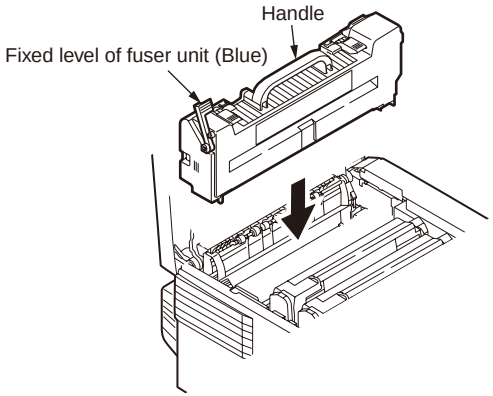


Pull up the jammed release level (2 levels) and then pull out the jammed paper to the front side.

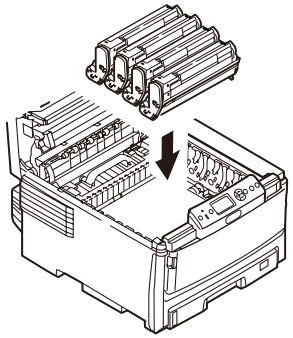


Holding up the handle and return the fuser unit to the printer gently.

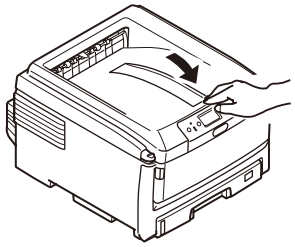
Bending the fixed level (Blue) of the fuser unit to the backside and fix it.



(6) Set four image drums in the printer.



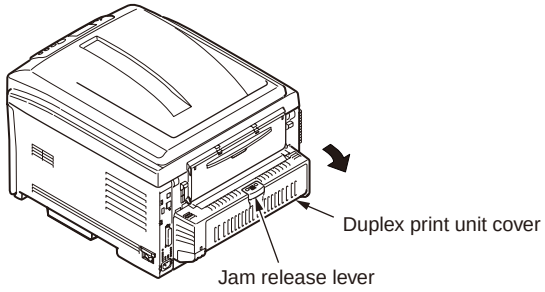
(7) Close the top cover.



Check the duplex unit. Paper Jam	Check the duplex unit. Paper Remains.

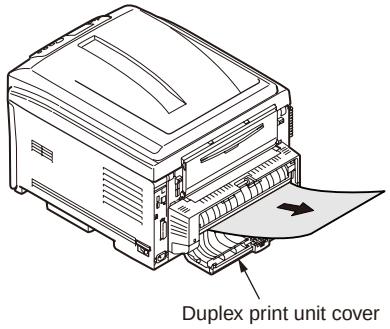
When the above messages are displayed.

(1) Hold and press down the jam release lever of the duplex print unit to open the duplex print unit cover.

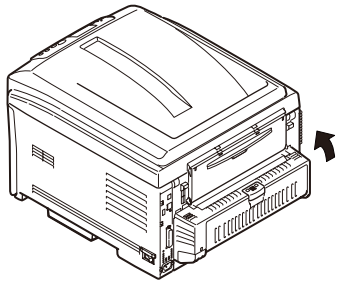


(2) Release jammed paper.

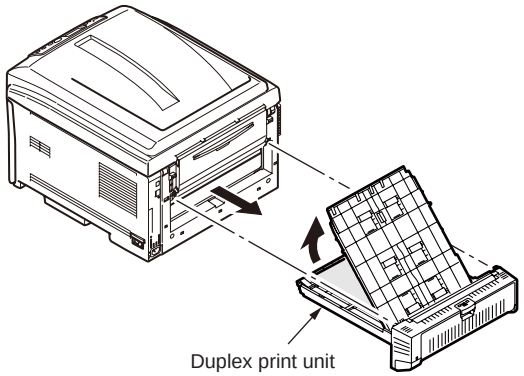
If you cannot see the jammed paper, by closing the duplex print unit cover, the paper is automatically rejected.



(3) Close the duplex print unit cover.



If the jammed paper cannot be rejected even close the duplex print unit cover, remove the Duplex print unit from the printer and check whether paper remains in the duplex print unit.



Note! If remove the duplex print unit, the printer power must be shut off.

Memo For the shutting off method of power refer to the section of [Shutting off the power].

7.5.2.(3) Paper feed jam (error code 391: 1st tray)

(3-1) Jam occurs immediately after the power is turned on. (1st tray)

Check item	Check work	Action to be taken at NG
(3-1-1) Check condition of the paper running path		
Paper running path of the front unit	Open the front cover check if paper is not jammed in the paper running path.	Remove the jammed paper.
(3-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1 and the paper entrance sensor 2.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(3-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the Maintenance Menu SWITCH SCAN function.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check output signal level of the paper entrance sensor 1 and that of the paper entrance sensor 2.	Check for the following signals at the FSNS connector ⑯ of the PU board. Pin-4: Paper entrance sensor 1 Pin-3: Paper entrance sensor 2 Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the FSNS connector ⑯ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(3-2) Jam occurs immediately after the paper feed is started. (1st tray)

Check item	Check work	Action to be taken at NG
(3-2-1) Check condition of the paper running path		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(3-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1 and the paper entrance sensor 2.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
Check the separator assemblies of the feed roller, the pickup roller and the tray.	Check if any foreign materials such as paper dust on the surface of the feed roller or of the pickup roller or not.	Remove the foreign material.
	Check if the feed roller or the pickup roller has worn out or not.	Replace the separator assemblies of the feed roller, pickup roller and tray.
(3-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board or the paper feed motor.
Paper feed motor driver	Remove the HOPSIZE connector ① of the PU board and check the followings at the connector side. Several MΩ between pin-1 – FG. Several MΩ between pin-2 – FG. Several MΩ between pin-3 – FG. Several MΩ between pin-4 – FG.	Replace the PU board.

Check item	Check work	Action to be taken at NG
(3-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the HOPSIZE connector ① of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Short circuit between pin-2 – FG Short circuit between pin-3 – FG Short circuit between pin-4 – FG	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the HOPSIZE connector ① of the PU board and check that approx. 3.4Ω can be measured between pin-1 -pin-2 at the cable end, and that approx. 5Ω can be measured between pin-3 -pin-4 respectively.	Replace the paper feed motor.
(3-2-5) Solenoid operation check		
Paper feed solenoid	Confirm that the paper feed solenoid works normally by using the Motor & Clutch Test of the self-diagnostic mode. Remove the metal plate from the right side of a printer so that the solenoid becomes visible. Then, check operation of the solenoid.	Replace the PU board, or replace the paper feed solenoid.
Paper feed solenoid	Check that any obstacle does not exist that hampers smooth operation of the movable portion of the solenoid. (Obstacles such as cable and others)	Normalize the assembled condition of a printer.

Check item	Check work	Action to be taken at NG
(3-2-6) Check the system connection		
Paper feed solenoid cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed solenoid cable	Check that any cable is not pinched during assembling of the printer. Remove the HSOL connector ⑭ of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Remove the HSOL connector ⑭ of the PU board and check that approx. 89Ω can be measured between pin-1 and pin-2.	Replace the solenoid assembly and re-assemble the printer correctly.

7.5.2.(4) Feed jam (error code 380)

(4-1) Jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(4-1-1) Check condition of the paper running path		
Paper running path of the front unit	Open the front cover check if paper is not jammed in the paper running path.	Remove the jammed paper.
(4-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(4-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the Maintenance Menu SWITCH SCAN function.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the output signal levels of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check for the following signals at the FSNS connector ⑯ of the PU board. Pin-4: Paper entrance sensor 1 Pin-3: Paper entrance sensor 2 Pin-2: WR sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the FSNS connector ⑯ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(4-2) Jam occurs immediately after the paper feed is started.

Check item	Check work	Action to be taken at NG
(4-2-1) Check condition of the paper running path		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(4-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 1, that of the paper entrance sensor 2 and that of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(4-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board, or replace the paper feed motor.
Paper feed motor driver	Remove the HOPSIZE connector ① of the PU board and check the followings at the connector side. Several MΩ between pin-1 – FG Several MΩ between pin-2 – FG Several MΩ between pin-3 – FG Several MΩ between pin-4 – FG	Replace the PU board.

Check item	Check work	Action to be taken at NG
(4-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the HOPSIZE connector no. 1 of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Short circuit between pin-2 – FG Short circuit between pin-3 – FG Short circuit between pin-4 – FG	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the HOPSIZE connector ① of the PU board and check that approx. 3.4Ω can be measured between pin-1 -pin-2 at the cable end, and that approx. 5Ω can be measured between pin-3 -pin-4 respectively.	Replace the paper feed motor.

7.5.2.(5) Paper feed jam (error code 390: Multipurpose tray)

(5-1) Jam occurs immediately after the power is turned on. (Multipurpose tray)

Check item	Check work	Action to be taken at NG
(5-1-1) Check condition of the paper running path		
Paper running path of the multipurpose tray	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(5-1-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 2 and the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
(5-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the sensor output signal level of the paper entrance sensor 2 and the WR sensor.	Check for the following signals at the FSNS connector ⑯ of the PU board. Pin-2: WR sensor Pin-3: Paper entrance sensor 2 Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the CN connector ㉕ of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(5-2) Jam occurs immediately after paper feed is started. (Multipurpose tray)

Check item	Check work	Action to be taken at NG
(5-2-1) Check condition of the paper running path		
Paper running path of the multipurpose tray	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
Sheet Receive of the multipurpose tray	Confirm that the Sheet Receive has moved up normally. Confirm that the support spindle and spring of the Sheet Receive have been installed in the specified positions normally.	Correct installation of the above parts so that the Sheet Receive moves up to the specified position normally.
(5-2-2) Check condition of the mechanical parts		
Check the sensor levers of the paper entrance sensor 2 and the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor with the good sensor lever.
Planetary gear for paper feed control	Rotate the paper feed motor (FRONT MOTOR) using the Motor & Clutch Test of the self-diagnostic mode, and confirm that both of the two planetary gears rotate at the bottom position. (The planetary gear box can be located because it is the white molded block that is located on the right side when the front cover is opened.)	Replace the planetary gear box
Front cover	Confirm that the locks in the right and left of the front cover are locked normally.	Replace the font cover assembly
Check the feed roller and the pickup roller.	Check if any foreign materials such as paper dust on the surface of the feed roller or of the pickup roller or not.	Remove the foreign material.
	Check if the feed roller has worn out or not.	Replace the feed roller.
(5-2-3) Motor operation check		
Paper feed motor	Confirm that the paper feed motor works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the PU board, or replace the paper feed motor.
Paper feed motor driver	Remove the HOPSIZE connector ① of the PU board and check the followings at the connector side. Several MΩ between pin-1 – FG Several MΩ between pin-2 – FG Several MΩ between pin-3 – FG Several MΩ between pin-4 – FG	Replace the PU board.
(5-2-4) Check the system connection		
Paper feed motor drive cable	Check the connection condition of the cable. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the HOPSIZE connector no. 1 of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Short circuit between pin-2 – FG Short circuit between pin-3 – FG Short circuit between pin-4 – FG	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor	Remove the HOPSIZE connector ① of the PU board and check that approx. 3.4Ω can be measured between pin-1 -pin-2, and that approx. 5Ω can be measured between pin-3 -pin-4 respectively.	Replace the paper feed motor.

7.5.2.(6) Paper running jam (error code 381)

(6-1) Jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(6-1-1) Check condition of the running path.		
Paper running path of the front unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(6-1-2) Check condition of the mechanical parts		
Check the sensor lever of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(6-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace either the PU board or the front sensor board (RSF PCB) or connection cable.
Check the sensor lever of the WR sensor.	Check for the following signals at the FSNS connector no. 16 of the PU board. Pin-2: WR sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the front sensor board (RSF PCB)
Check the power voltages supplied to the front sensor board (RSF PCB)	Check the 5V power at the CN connector no. 25 of the front sensor board (RSF PCB). Pin-1: 5V power supply Pin-5: 0VL	Replace the connection cable.

(6-2) Jam occurs immediately after a paper is taken into printer.

Check item	Check work	Action to be taken at NG
(6-2-1) Check condition of the paper running path		
Paper running path on the belt.	Remove the ID unit and check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(6-2-2) Check condition of the mechanical parts		
Check the sensor lever of the WR sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(6-2-3) Motor operation check		
Paper feed motor driver, belt motor driver and ID motor	Confirm that the paper feed motor, belt motor and ID motor work normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board, or replace the defective motor among paper feed motor, belt motor and ID motor, or replace the ID unit or belt unit. If any attempt of using new ID unit or new belt unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Paper feed motor, belt motor	Remove the BELT ID UP connector ① of the PU board and check the followings at the connector side. Several MΩ between pin-5 – FG Several MΩ between pin-6 – FG Several MΩ between pin-7 – FG Several MΩ between pin-8 – FG Remove the HOPSIZE connector ③ of the PU board and check the followings at the connector side. Several MΩ between pin-1 – FG Several MΩ between pin-2 – FG Several MΩ between pin-3 – FG Several MΩ between pin-4 – FG	Replace either paper feed motor, belt motor or PU board.

Check item	Check work	Action to be taken at NG
(6-2-4) Check the system connection		
Paper feed motor drive cable, ID motor drive cable, belt motor drive cable, ID Up motor drive cable, fuser motor drive cable	Check the connection condition of the cables. PU board HOPSIZE connector ⑫, DC ID connector ②, DCHEAT connector ④, BELT ID UP connector ③, RELAY connector ⑧. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Normalize the connection condition. Replace the cable with the normal cable.
Paper feed motor drive cable, ID motor drive cable, belt motor drive cable, ID Up motor drive cable	Check that any cable is not pinched during assembling of the printer. Remove the BELT ID UP connector ③ of the PU board and check the followings at the connector side. Short circuit between pin-1 – FG Short circuit between pin-2 – FG Short circuit between pin-3 – FG Short circuit between pin-4 – FG Short circuit between pin-5 – FG Short circuit between pin-6 – FG Short circuit between pin-7 – FG Short circuit between pin-8 – FG Remove the HOPSIZE connector ⑫ of the PU board and check the followings at the cable side. Short circuit between pin-1 – FG Short circuit between pin-2 – FG Short circuit between pin-3 – FG Short circuit between pin-4 – FG	Replace the cable with the good cable that normalizes the connection condition.
Paper feed motor, belt motor, ID Up motor	Remove the respective connectors from the board, and confirm that the following resistance exists between the corresponding pins, at the cable side. PU board HOPSIZE connector 1 Between pin-1 - pin-2 Approx. 3.4Ω or approx. 5Ω. Between pin-3 - pin-4 Approx. 3.4Ω or approx. 5Ω. PU board BELT ID UP connector 3 Between pin-1 - pin-2 Approx. 6.1Ω or approx. 3.5Ω. Between pin-3 - pin-4 Approx. 6.1Ω or approx. 3.5Ω. Between pin-5 - pin-6 Approx. 3.4Ω or approx. 5Ω. Between pin-7 - pin-8 Approx. 3.4Ω or approx. 5Ω.	Replace paper feed motor, belt motor, ID Up motor.

(6-3) Jam occurs in the middle of paper running path.

Check item	Check work	Action to be taken at NG
(6-3-1) Motor operation check		
Paper feed motor driver, belt motor driver and ID motor	Confirm that the paper feed motor, belt motor and ID motor work normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board, or replace the defective motor among paper feed motor, belt motor and ID motor, or replace the ID unit or belt unit. If any attempt of using new ID unit or new belt unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Paper feed motor, belt motor	Remove the BELT ID UP connector ① of the PU board and check the followings at the connector side. Several MΩ between pin-5 – FG Several MΩ between pin-6 – FG Several MΩ between pin-7 – FG Several MΩ between pin-8 – FG Remove the HOPSIZE connector ③ of the PU board and check the followings at the connector side. Several MΩ between pin-1 – FG Several MΩ between pin-2 – FG Several MΩ between pin-3 – FG Several MΩ between pin-4 – FG	Replace either paper feed motor, belt motor or PU board.

(6-4) Jam occurs immediately after paper has reached the fuser.

Check item	Check work	Action to be taken at NG
(6-4-1) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board. Replace the fuser motor. Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(6-4-2) Temperature control of the roller rotation speed		
Heat roller detected temperature	Check the detected temperature of the heat roller using the self-diagnostic mode. Is abnormally high temperature or abnormally temperature detected?	Replace fuser unit, or relay board (PRY PCB) or the PU board. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(6-4-3) Check the installation condition of fuser unit		
Fuser unit	Check that the fuser unit is installed normally. (Is it pushed in down to the bottom-most point?)	Install the fuser unit correctly in a printer.

7.5.2.(7) Paper unloading jam (error code 382)

(7-1) Paper unloading jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(7-1-1) Check condition of the paper running path		
Paper running path of the paper unloading unit	Check if paper is jammed or not in the paper running path.	Remove the jammed paper.
(7-1-2) Check condition of the mechanical parts		
Check the sensor lever of the paper exit sensor.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(7-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the PU board or EXIT sensor or its cable or its connection cable.
Check the output signal level of the EXIT sensor.	Check for the following signals at the RELAY connector ⑧ of the PU board. Pin-9: EXIT sensor Confirm that the above signal levels change when the sensor lever is operated.	Replace the EXIT sensor.
Check the power voltages supplied to the relay board.	Check the 5V power voltage at the EXIT connector ㉖ of the relay board. Pin-1: 5V power supply Pin-3: 0VL	Replace the connection cable.
(7-1-4) Check the system connection		
Signal cable for relay board, EXIT sensor cable	Check that FFC is normally inserted at the RELAY connector ⑧ of the PU board and at the PU IF connector ㉒. Check that the relay board and the EXIT sensor are normally connected.	Normalize the connection condition.
Signal cable for relay board, EXIT sensor cable	Confirm that the cables are not pinched, sheathes are not peeled off, and they are assembled normally.	Replace the connecting cable and normalize the assembled condition.

(7-2) Paper unloading jam occurs after a paper is taken into printer.

Check item	Check work	Action to be taken at NG
(7-2-1) Check condition of the paper running path		
Face Up Stacker Cover	Confirm that it is either fully opened or fully closed	Eliminate any in-between condition of the cover between the fully open position and fully closed position.
Duplex pull-in gate	Confirm that the Duplex pull-in gate works normally by using the Motor & Clutch Test of the self-diagnostic mode. Is it set to the paper unloading side normally?	Replace the Duplex pull-in gate or the Duplex solenoid
Rear panel	Check that the installation condition of the rear panel hampers smooth movement of a paper in the paper running path, or not.	Remove the rear panel and re-install it.
Paper running path of unloading unit	Check that any mechanical load does not exist that hampers the smooth movement of paper in the paper running path of the paper unloading unit, by the visual inspection. Check if the paper unloading motor becomes difficult to rotate or not.	Correct the portion that becomes mechanical load.
(7-2-2) Check condition of the mechanical parts		
Sensor lever of the paper exit sensor	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(7-2-3) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board or fuser motor or fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(7-2-4) Check the system connection		
Fuser motor drive cable	Check the connection condition of the cables. PU board DCHEAT connector ④, Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not. Check also that cables are assembled without any abnormality.	Replace the cable with the good cable that normalizes the connection condition.
Fuser motor		Replace the fuser motor.

(7-3) Paper unloading jam occurs in the middle of paper running path.

Check item	Check work	Action to be taken at NG
(7-3-1) Motor operation check		
Fuser motor	Confirm that the fuser motor works normally by using the Motor & Clutch Test of the self-diagnostic mode. Check if any load exists or not.	Replace the PU board or fuser motor or fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

7.5.2.(8) Two-sided printing jam (error code: 370, 371, 372, 373, 383)

(8-1) Two-sided printing jam occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(8-1-1) Check condition of the paper running path		
Paper running path of the Duplex unit	Check if paper is jammed or not in the paper running path. Open the front cover and check if any paper remains in the Duplex feeder or not. Open the rear cover and check if any paper remains in the paper reversing path or not. Remove the Duplex unit. Check if any paper exists in the Duplex insertion slot or not. Open the cover of the Duplex paper running path and check if any paper remains inside of the Duplex unit.	Remove the jammed paper.
(8-1-2) Check condition of the mechanical parts		
Check the sensor levers of the respective sensors of the Duplex unit.	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.
(8-1-3) Check condition of electrical parts		
Check the detection condition of the sensor signal.	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode. For all sensors except the Dup-IN sensor, check the detection condition of the respective sensor in the two status: One is the status in which paper remains inside the Duplex unit. The other is the status in which paper is removed from the Duplex unit.	Replace the Duplex board (V7Y PCB), or replace the defective sensor or connection cable.

(8-2) Two-sided printing jam occurs during taking in the paper into Duplex unit.

Check item	Check work	Action to be taken at NG
(8-2-1) Solenoid operation check		
Duplex solenoid	Confirm that the Duplex solenoid works normally by using the Motor & Clutch Test of the self-diagnostic mode.	Replace the V7Y board or solenoid.
Separator DUP (Paper unloading/ DUP paper taking-in switching gate located immediately after the fuser unit)	Check visually movement of the gate by using the Motor & Clutch Test of the self-diagnostic mode. (EXIT SOLENOID) Check if movement is unsmooth or not, if amount of open/close is abnormal or not.	Replace the separator DUP.
ON/OFF timing of the Duplex solenoid	While the cover is in the opened state, perform the test print and confirm if the timing to open the separator DUP is correct or not.	Replace the WR sensor lever or solenoid.
(8-2-2) Sensor lever operation check		
Dup-IN sensor lever	Open the rear cover. Touch the Dup-IN sensor lever to check if its movement is unsmooth or not.	Replace the Dup-IN sensor lever
DUP-IN sensor	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the Duplex board (V7Y PCB), or replace the defective sensor or connection cable.
(8-2-3) Check condition of the paper running path		
Paper inverting transport path	Check that any foreign materials such as paper chip or blue do not exist that hampers the smooth movement of paper in the paper inverting transport path.	Remove the foreign material.
(8-2-4) Motor operation check		
Duplex motor	Confirm that the Duplex solenoid works normally by using the Motor & Clutch Test of the self-diagnostic mode. Open the rear cover and check rotation of the roller.	Replace the V7Y board or motor.
Duplex pull-in/ reversing roller and its pinch roller	Check if the pull-in/reversing roller of the Duplex unit contacts or not with the pinch roller of the cover side when the Duplex rear cover is closed. (Does the pinch roller rotate when the roller is rotating?)	Replace the rear cover.

(8-3) Two-sided printing jam occurs in the process of reversing paper.

Check item	Check work	Action to be taken at NG
(8-3-1) Sensor lever operation check		
Dup-IN sensor lever	Open the rear cover. Touch the Dup-IN sensor lever to check if its movement is unsmooth or not.	Replace the Dup-IN sensor lever
DUP-IN sensor	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode.	Replace the Duplex board (V7Y PCB), or replace the defective sensor or connection cable.
(8-3-2) Motor operation check		
Duplex motor	Check if the paper reversing operation is started or not by visual inspection when viewing through slit of the rear cover. If the paper reversing operation is not started, check if movement of the planetary gear inside the Duplex unit is unsmooth or not.	Replace the planetary gear.

(8-4) Two-sided printing jam occurs during transporting paper inside the Duplex unit.

Check item	Check work	Action to be taken at NG
(8-4-1) Sensor lever operation check		
Dup-R, Dup-F sensor lever	Remove the Duplex unit and check movement of the sensor lever.	Replace the sensor lever.
(8-4-2) Sensor check		
Check the detection condition of the sensor signal	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode. For all sensors except the Dup-IN sensor, check the detection condition of the respective sensor in the two status: One is the status in which paper remains inside the Duplex unit. The other is the status in which paper is removed from the Duplex unit.	Replace the Duplex board (V7Y PCB), or replace the defective sensor or connection cable.

(8-5) Paper is not supplied from the Duplex unit to the regist roller.

Check item	Check work	Action to be taken at NG
(8-5-1) Clutch operation check		
Duplex clutch	Confirm that the Duplex clutch works normally by using the Motor & Clutch Test of the self-diagnostic mode.Confirm it by listening to the sound.	Replace the V7Y board or clutch.

7.5.2.(9) Paper size error (error code 400 and 401)

(9-1) Jam occurs when paper end is located near the IN1 sensor.

Check item	Check work	Action to be taken at NG
(9-1-1) Check paper feed condition		
Multifeed of papers	Open the front cover and check if multifeed of papers occurs or not.	If the multifeed occurs again after the jammed paper is removed, replace the flap of the tray in use.
Paper size	Does the paper size specified for print match the paper size of paper stuck in the tray.	Change the specified paper size or size of paper inside the tray.
Paper entrance sensor 1	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the sensor lever with the good sensor lever.

7.5.2.(10) ID unit Up/Down error (Service call 140 to 143)

(10-1) Error occurs during the Up movement of the ID unit

Check item	Check work	Action to be taken at NG
(10-1-1) Check the mechanical load during the Up movement		
Mechanical load during installation and removal of the ID unit	Check if abnormal heavy load is applied when removing the ID unit.	IReplace the ID unit, or replace the right/left side plate. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Greasing to the right and left Up/Down link levers	Check if the slant surface of the link lever is coated by grease or not.	Apply grease.
Assembled condition of the right and left Up/Down link levers	Check if any part exists or not in the vicinity of link lever, that hampers movement of the link lever.	Assemble them correctly.
(10-1-2) Up/Down mechanism		
Assembled condition of the peripheral mechanism of the link lever	Is the mechanism assembled so that the link lever is connected to the planetary driving gear?	Assemble them correctly.
Right and left link levers	Check if the link lever is set in the correct position that enables the specified engagement of gears. (Check if the link lever is set in the wrong position that results in the wrong engagement of gears by several teeth.)	Assemble them correctly.

Check item	Check work	Action to be taken at NG
(10-1-3) Sensor check		
Up/Down sensor lever (unified structure with the left link lever)	Check if shape and movement of the sensor levers have any abnormality or not.	Replace the left link lever.
Up/Down sensor	Confirm that the sensor signals are normally detected by using the SWITCH SCAN function of the self-diagnostic mode. Check if the SCAN state changes or not when the incoming light is interrupted/passed by using a piece of paper or the like for the transparent type sensor.	Replace the high voltage board.

(10-2) Error occurs during the Down movement of the ID unit

Check item	Check work	Action to be taken at NG
(10-2-1) Check the mechanical load during the Down movement		
Mechanical load during installation and removal of the ID unit	Check if abnormal heavy load is applied when removing the ID unit.	Replace the ID unit, or replace the right/left side plate.
Greasing to the right and left Up/Down link levers	Check if the slant surface of the link lever is coated by grease or not.	Apply grease.
Assembled condition of the right and left Up/Down link levers	Check if any part exists or not in the vicinity of link lever, that hampers movement of the link lever.	Assemble them correctly.

7.5.2.(11) Fuser unit error (error 170 to 177)

(11-1) Error occurs immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(11-1-1) Thermistor is defective Note)		
Upper thermistor, lower thermistor, frame thermistor	Check the respective thermistors if they are shorted or opened internally. Check the resistance value at the connector pins in the bottom of the fuser unit. (Refer to section 8.1 Resistance check (fuser unit).)	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installed condition of fuser unit.	Check if the fuser nit is pressed in until the connector in the bottom of the fuser unit is surely connected.	Re-set the fuser unit.

Note! Service calls 171 error and 171 error can occur when the printer temperature is below 0˚C. Turn on the power again after the printer temperature has increased.

(11-2) Error occurs approx. 1 minute after the power is turned on.

Check item	Check work	Action to be taken at NG
(11-2-1) Temperature increase of fuser unit		
Thermostat, halogen lamp	Heater of the fuser unit is controlled of its temperature. Check if the fuser unit gets hot or not by touching it with hands. If the fuser unit temperature does not increase and remains cold, check that the resistance between pin-1 and pin-2, and that in between pin-3 and pin-4 of the two connectors is in the range of several ohms to several ten ohms respectively. (Refer to section 8.1 Resistance value (fuser unit).)	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

Check item	Check work	Action to be taken at NG
(11-2-2) Temperature increase of fuser unit		
Installation position of the upper thermistor	Check if the upper thermistor is installed in the far position from the specified position or not causing detection of the lower temperature than the actual temperature of fuser unit. Remove the heater cover, and check warpage of sensor by visual inspection.	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Installation position of the lower thermistor	The lower thermister must be installed while contacting with the fuser unit. Check if the lower thermister is installed in the far position from the specified position or not causing detection of the lower temperature than the actual temperature of fuser unit.	Replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(11-2-3) AC power input to the halogen lamp		
AC power voltage from the low voltage power supply	Check if the AC voltage for heater is normally supplied or not. Power supply CN2 connector ㉔, between pin-1 and pin-2, and between pin-3 and pin-4.	Replace the low voltage power supply.
Heater ON signal that is output from PU to the low voltage power supply	Check that the heater ON signal goes active at the warming up timing, or not. "L" active while ON. Power connector ⑩ of the PU board, between pin-11 and pin-12.	Replace the PU board.

7.5.2.(12) Motor fan error (error code 122, 127, 128, 918, 051)

(12-1) The low voltage power supply fan does not rotate immediately after the power is turned on.

Check item	Check work	Action to be taken at NG
(12-1-1) Cable connection condition and wiring condition		
Cable connection condition and wiring condition of the low voltage power supply fan and those of the fuser fan	Check if the connectors are connected normally or not. Check if extra length of the cables does not touch the fan blade or not.	Correct the connection condition of the connectors. Correct the cable wiring route. Replace the fan.

(12-2) Duplex fan does not rotate during the Duplex printing.

Check item	Check work	Action to be taken at NG
(12-1-2) Cable connection condition and wiring condition		
Cable connection condition and wiring condition of the Duplex fan	Check if the connectors are connected normally or not. Check if extra length of the cables does not touch the fan blade or not.	Correct the connection condition of the connectors. Correct the cable wiring route. Replace the fan. Replace the fan.
24V fuse F501 of the Duplex board (V7Y PCB)	Check if the fuse F501 has blown out or not.	Replace the Duplex board (V7Y PCB).
24V power supplied to the Duplex board (V7Y PCB).	Check if the fuse F1 of the PU board has blown out or not.	Replace the PU board.

(12-3) All fans of the printer do not rotate.

Check item	Check work	Action to be taken at NG
(12-3-1) 24V power supply		
PU board fuses F4, F5	Check if the fuses F4 and F5 are not open-circuit or not.	Replace the PU board.
24V power that is supplied to the PU board.	Check the power supply voltages at the POWER connector ⑩ of the PU board. The follow voltage must appear respectively. Pins-4, 5 and 6: 24V Pin-8: 0VL Pins-1, 2 and 3: 0VP	Replace the low voltage power supply.

7.5.2.(13) Print speed is slow. (Performance is low.)

(13-1) Print speed decreases.

Check item	Check work	Action to be taken at NG
(13-1-2) Media Weight setting		
Media Weight that is specified for the print	Check if the wrong Media Weight has been specified or not.	Correct the Media Weight.

7.5.2.(14) Option unit cannot be recognized.

(14-1) Duplex unit cannot be recognized.

Check item	Check work	Action to be taken at NG
(14-1-1) Duplex board		
Duplex unit	Check if the Duplex unit of C830/C821 specification is being used or not.	Replace the Duplex unit.
(14-1-2) Check the system connection		
Check the system connection from the PU board to the Duplex board (V7Y PCB).	Check that the cable between the PU board option connector ⑬ to the Duplex board is normally connected.	Correct the connections.
Square connector connecting the Duplex unit to the printer.	Check if any foreign material exists in the connecting portion of the square connector.	Remove the foreign material.
Square connector connecting the Duplex unit to the printer.	Is the terminals of the square connector damaged?	Replace the connector.
(14-1-3) Check the control signals.		
Check the control signal that is output from the PU board to the Duplex board (V7Y PCB).	Check the control signal that is output from the PU board option connector ⑬. Pin-6: TXD (PU → DUP) Pin-4: RXD (DUP → PU)	Replace the PU board.

(14-2) Option try unit cannot be recognized.

Check item	Check work	Action to be taken at NG
(14-2-1) Option try board		
Option try unit	Check if the option try unit of C830/C821 specification is being used or not.	Replace the option tray unit.

Check item	Check work	Action to be taken at NG
(14-1-2) Check the system connection		
Check the system connection from the PU board to the option tray board (V7Y PCB).	Check that the cable between the PU board option connector ⑬ to the option tray board is normally connected.	Correct the connections.
Square connector connecting the option tray unit to the printer.	Check if any foreign material exists in the connecting portion of the square connector.	Remove the foreign material.
Square connector connecting the option tray unit to the printer.	Is the terminals of the square connector damaged?	Replace the connector.
(14-2-3) Check the control signals.		
Check the control signal that is output from the PU board to the option tray board (V7Y PCB).	Check the control signal that is output from the PU board option connector ⑬. Pin-5: TXD (PU → 2nd) Pin-3: RXD (2nd → PU)	Replace the PU board.

7.5.2.(15) LED head cannot be recognized. (error code 131, 132, 133, 134)

(15-1) Service call 131 to 134 (LED HEAD Missing)

Check item	Check work	Action to be taken at NG
(15-1-1) Check the system connection		
Connecting condition at the CU board connector and at the head connector.	Check the connecting condition of the FFC by the visual inspection.	Correct the connection to the normal connecting condition.
Head FFC	Remove the head FFC from the printer. Check if any open-circuit or peeling-off of sheath has occurred or not throughout the cable.	Replace the head FFC or the CU board.
Conduction of the fuse on the CU board.	Check that 5V appears across the capacitors CP7 and CP8. (Refer to section 7.6.)	Replace F504, F506 or replace the CU board.

7.5.2.(16) Toner cartridge cannot be recognized. (error code 540, 541, 542, 543)

(16-1) Error caused by the consumable items.

Check item	Check work	Action to be taken at NG
(16-1-1) Consumable items installation condition		
ID unit and toner cartridge	Check that the ID unit is installed in the normal position. Check that the lock lever of the toner cartridge is locked.	Correct the installation to the normal installation condition.

(16-2) Error caused by the toner sensor

Check item	Check work	Action to be taken at NG
(16-2-1) Toner sensor condition		
Toner sensor	Is the receptor of the toner sensor stained?	Wipe off the stain from the toner sensor.
Toner sensor	Confirm that the toner sensor works normally by using the SWITCH SCAN function of the self-diagnostic mode. Place a white paper in front of the toner sensor, and check if the SCAN state changes or not.	Replace the toner sensor board, or the PU board, or the FFC between the toner sensor board and the PU board.

Note! Toner sensor operation check method using the SWITCH SCAN function of the self-diagnostic mode.

(1) How to check operation of the toner sensor at the printer side.

1. Status change of the toner sensor can be checked from the Operator Panel using the self-diagnostic mode. First, switch the display to the Operator Panel display. For the method of switching the display to the Operator Panel display, refer to section 5.3.2.3 Switch Scan Test
2. Remove the ID unit and the toner cartridge (TC) from a printer. There is a window inside a printer opposing the ID side when viewed from the front of a printer. The toner sensor is located inside the window.
3. Place a white paper 3 mm away from the sensor window. The white paper should be placed in the manner of opposing the toner sensor.
4. When light is reflected by a white paper so that incident light falls on the toner sensor, the Operator Panel display shows "L". When the paper is moved so that any light is not reflected by the paper so that the incident light does not reach the toner sensor, "H" is displayed on the Operator Panel.
5. If the Operator Panel display toggles between "H" <-> "L" as a paper is flipped in front of the toner sensor, it indicates that the toner sensor and the related system of the printer are working normally.

Action to be taken at NG

- Clean surface of the toner sensor to remove the stains due to residual toner and paper dust.
- Check the connection condition of the FFC cable at the PU main board (PU) and at the toner sensor board (PRZ).
- Perform the operation check again. If the situation is not improved and remains unchanged, replace the PU main board (PU) or the toner sensor board (PRZ).

(2) How to check operation of the toner sensor at the toner cartridge (TC) side

1. To the position where the toner sensor is confirmed to be operating normally in the printer itself by the above paragraph (1), install the TC and the ID unit to check operations by observing display on the Operator Panel.
2. If the ID unit works normally, the display on the Operator Panel will toggle between "H" <-> "L" in synchronism with movement of the silver reflector plate that is located on the side of the ID.

Action to be taken at NG

- Check operation condition of the respective ID motors by using the Motor & Clutch Test of the self-diagnostic mode.
- Clean surface of the silver reflector plate on the side of ID to remove stains. (Stain due to toner or paper dust)
- Replace the TC of different color and the ID unit as a pair.

  If a satisfactory operation is attained by using the a pair of TC of different color and the ID unit, replace the TC or replace the ID unit.

(16-3) Error caused by the defective mechanism

Check item	Check work	Action to be taken at NG
(16-3-1) Mechanical load applied to the ID unit		
ID unit	Check if a heavy mechanical load is being applied to the ID unit due to breakage of the waster toner belt, or not.	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(16-3-2) Motor operating condition		
ID motor	Confirm that the respective ID motors work normally or not by using the Motor & Clutch Test of the self-diagnostic mode. Check if any extra load exists or not.	Replace the PU board or the ID motor.

7.5.2.(17) Fuse cut error (error codes 150 to 155)

(17-1) Fuse cut error

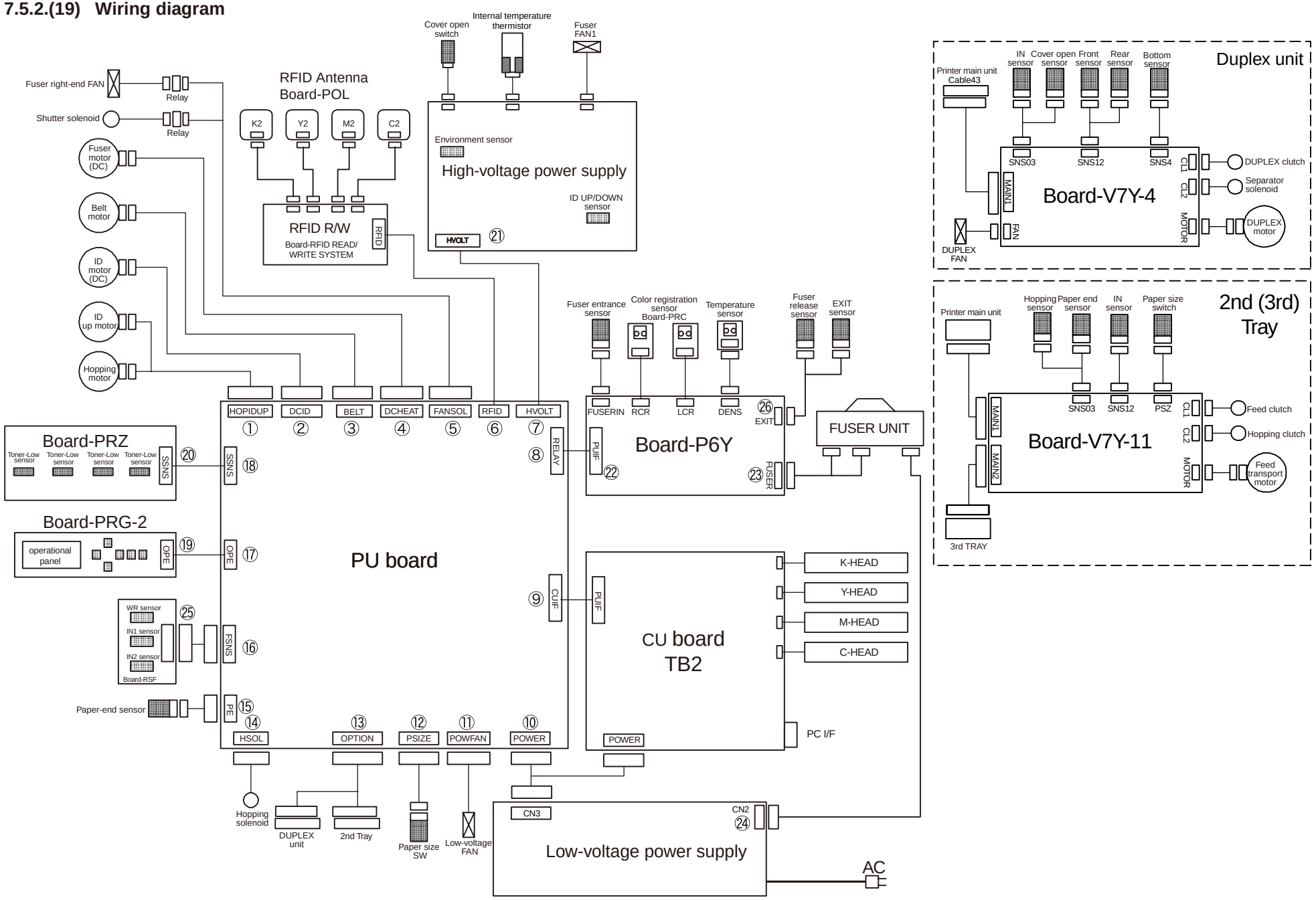
Check item	Check work	Action to be taken at NG
(17-1-1) Check the system connection		
FFC connecting the PU board and the toner sensor board (PRZ PCB)	Check if the connector is connected in the half-way only or not, and is inserted in a slanted angle or not at the SSNS connector ⑱ of the PU board, and at the SSNS connector ⑳ of the toner sensor board (PRZ PCB). Check if FFC has open-circuit of sheath of the FFC has not peeled off or not.	Connect the FFC normally. Alternately, replace the FFC.
(17-1-2) Fuse cut circuit		
PU board	Upon completion of the system connection check, turn off the power once and back on. The, check if the error occurs or not.	Replace the PU board.

7.5.2.(18) Humidity sensor error (error code 123)

(18-1) Humidity sensor error

Check item	Check work	Action to be taken at NG
(18-1-1) Check the system connection		
Connection between the PU board and Operator Panel	Check if the 10-conductor FFC is connected to the OPE connector ⑰ of the PU board normally or not. Check if the 10-conductor FFC is connected to the CN1 connector ⑲ of the Operator Panel board normally or not. Check if the connector is connected in the half-way only or not, and check if the connector is inserted in a slanted angle or not.	Re-connect the cable normally.
FFC connecting the PU board and the Operator Panel board	Check for open-circuit with VOM. Check that peeling off of sheath does not occur in any cables by visual inspection.	Replace the FFC with the normal FFC.
(18-1-2) Environment condition		
Sharp change of environment condition	Is the environment condition changed sharply from a low temperature environment to a high environment condition within a short time? (Example is such a case that a printer is moved from storage condition of a cold area in winter to an office environment.)	Leave a printer for around one hour in the new environment to get used to the new environment. After that, turn on the power again. Before turn on the power, touch the metal panel of the controller panel and the metal plate inside a printer to feel temperature increase inside a printer with human hands. After confirmation that the printer temperature has increased close to the room temperature, turn on the power again.

7.5.2.(19) Wiring diagram



7.5.3 Troubleshooting the abnormal images

(1) Color has faded-out and blurred entirely. (Refer to Figure 7-2 A.) 212
(1-1) Color are faded-out and blurred. 212
(2) Stain on white print (Refer to Figure 7-2 B.) 213
(2-1) Stain on white print (Partial stain) 213
(2-2) Stain on white print (overall stain) 213
(3) White print (Refer to Figure 7-2 C.) 214
(3-1) White print over entire page 214
(4) Black banding/black streaking in vertical direction 215
(4-1) Thin vertical line (with color) (Refer to Figure 7-2 D.) 215
(4-2) Thin vertical line (without color) (Refer to Figure 7-2 F.) 215
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(5-1) Cyclic abnormality occurs in vertical direction 215
(6) Heavy color registration error 216
(6-1) Display of the message "Color adjustment is in progress" appears only short time. 216
(6-2) Though REG ADJUST TEST of engine maintenance function is ok, color blur occurs 216
(7) Entirely black print 216
(7-1) All black print over entire page 216
(8) For the entire monochrome print, it does not being printed. 217
(8-1) Setting by mistake of the specific color print menu 217

Note! When an attempt is going to be made to replace the PU board, read data contents of the EEPROM chip from the old PU board beforehand, and copy the data contents into the new board after the new PU board is installed.

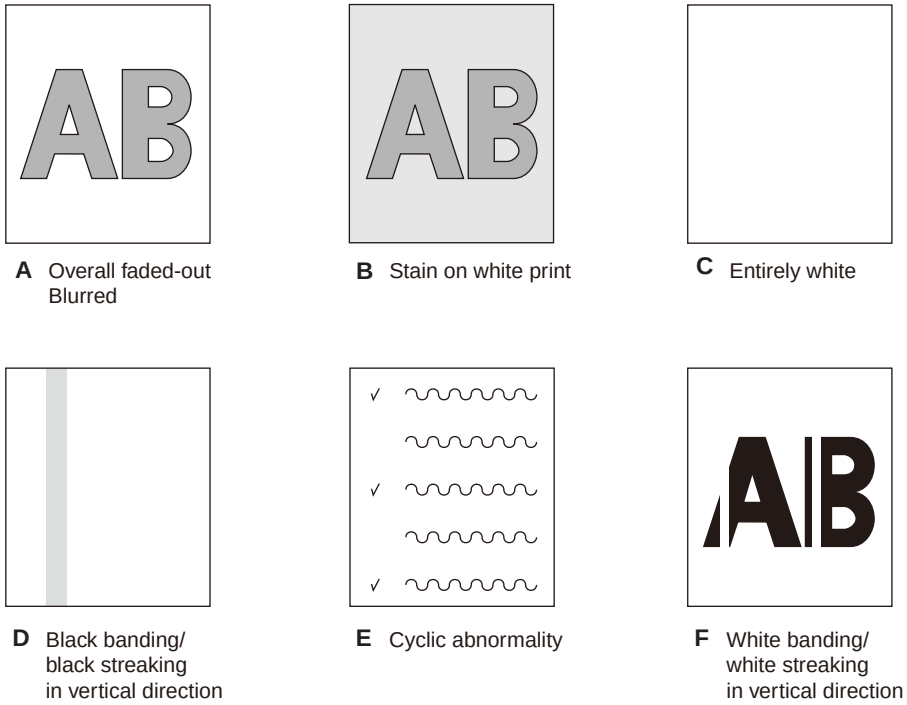

AB
AB
A Overall faded-out Blurred
B Stain on white print
C Entirely white
D Black banding/ black streaking in vertical direction
E Cyclic abnormality
F White banding/ white streaking in vertical direction

Figure 7-2

7.5.3.(1) Color has faded-out and blurred entirely. (Refer to Figure 7-2 A.)

(1-1) Color are faded-out and blurred.

Check item	Check work	Action to be taken at NG
(1-1-1) Toner		
Remaining amount of toner	Check if the message "Prepare toner replacement." or "Replace the toner." appears or not.	Replace toner cartridge with new one.
Tape attached to the toner cartridge opening slot	Check to see that the tape attached to the toner cartridge opening slot has been peeled off.	Move the toner cartridge lever to CLOSE position and remove tape from opening slot.
(1-1-2) LED head		
Lens of the LED head	Check if surface of the lens of the LED head is stained or not by toner and paper dust.	Clean the lens with soft tissue paper.
Mounting condition of LED head	Check that the LED head is mounted on the LED head holder correctly. Check that the right and left tension springs are normally installed.	Correct for normal condition.
(1-1-3) Print media		
Media type	Check to see that the print media which is used for printing is not a specially thick media	Use the normal paper.
(1-1-4) High voltage terminal		
ID unit terminal	ICheck that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 7-3.)	IReplace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(1-1-5) ID unit installation condition		
ID unit DOWN position (Defective transfer)	Move the ID unit in and out with hand to confirm that any abnormal mechanical load does not exist, and the ID unit can be moved down to the DOWN position normally. If a piece of paper is inserted in between drum and belt, if top end of the paper can enter easily, it is NG (No Good).	Check the U-shaped groove of the side plate for any abnormality. If repair is found impossible, replace the equipment.

7.5.3.(2) Stain on white print (Refer to Figure 7-2 B.)

(2-1) Stain on white print (Partial stain)

Check item	Check work	Action to be taken at NG
(2-1-1) ID unit		
Exposure of drum to light	Is the drum left in a circumstance in which drum surface is exposed to direct light for a long time?	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
Leakage of toner	Does toner leak out from either ID unit or from toner cartridge?	Replace the ID unit or toner cartridge. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(2-1-2) Fuser unit		
Offset toner of the fuser unit	Check if the offset toner of the previous printing is left adhered on the fuser unit or not, by visual inspection.	Repeat blind printing using unwanted media until offset toner is created on print media. Alternately replace the fuser unit. If any attempt of using new fuser unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

(2-2) Stain on white print (overall stain)

Check item	Check work	Action to be taken at NG
(2-2-1) Print media		
Type of print media	Check to see that the print media which is used for printing is not a specially thin media.	Use the normal paper.
(2-2-2) High voltage terminal		
ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 7-3.)	Replace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

7.5.3.(3) White print (Refer to Figure 7-2 C.)

(3-1) White print over entire page

Check item	Check work	Action to be taken at NG
(3-1-1) Toner condition		
Remaining amount of toner	Confirm that sufficient amount of toner remains inside the toner cartridge.	Replace the toner cartridge.
(3-1-2) Exposure condition to light		
LED head	Confirm that the LED head is positioned in the normal position where the LED head opposes again the drum when the cover is closed. Check that no obstacle exists in front of the LED head, that hampers light emission from the illuminating surface of the LED head.	Correct the installation condition of the LED head.
Connecting condition of the LED head	Check that the LED head is normally connected.	Replace the LED head.
Drum shaft	Check that the drum shaft keeps contacting with the right and left side plates normally.	Replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
F506, fuse on the CU board	Measure resistance of F506. 1 ohm or less: Normal Higher than 1 ohm: NG	Replace the CU board

Check item	Check work	Action to be taken at NG
(3-1-3) High voltage terminal		
ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 7-3.)	Replace the ID unit or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

7.5.3.(4) Black banding/black streaking in vertical direction

(4-1) Thin vertical line (with color) (Refer to Figure 7-2 D.)

Check item	Check work	Action to be taken at NG
(4-1-1) ID unit condition		
Filming of the ID unit	Is print attempted without toner?	Replace toner cartridge with new one. If replacement does not solve the problem, replace the ID unit. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

(4-2) Thin vertical line (without color) (Refer to Figure 7-2 F.)

Check item	Check work	Action to be taken at NG
(4-2-1) LED head condition		
LED head	Is any foreign material attached on the light emitting surface of the cell fox lens of the LED head?	Remove the foreign material.
(4-2-2) Condition of paper running path		
Paper running path	Check that any burr that may scatter the un-fused toner on the paper running path does not exist.	Remove the burr.

7.5.3.(5) Cyclic abnormality (Refer to Figure 7-2 E.)

(5-1) Cyclic abnormality occurs in vertical direction

Check item	Check work	Action to be taken at NG
(5-1-1) Cycle		
Image drum	Check that the cycle is 94.3 mm.	Replace the ID unit
Developing roller	Check that the cycle is 39.7 mm.	Replace the ID unit
Toner feed roller	Check that the cycle is 58.4 mm.	Replace the ID unit
Charge roller	Check that the cycle is 37.7 mm.	Replace the ID unit
Roller on top of fuser	Check that the cycle is 87.7 mm.	Replace the fuser unit.
Fuser belt	Check that the cycle is 125.5 mm.	Replace the fuser unit.
Transfer roller	Check that the cycle is 50.3 mm.	Replace the belt unit.
		If any attempt of using new consumable item as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.

7.5.3.(6) Heavy color registration error

(6-1) Display of the message "Color adjustment is in progress" appears only short time.

Check item	Check work	Action to be taken at NG
(6-1-1) Result of color registration error correction		
Color registration error correction time (If a printer is normal, it is approx. 40 seconds.)	Use the self-diagnostic mode and execute the REG ADJUST TEST. Check the result. Error is issued but is not displayed on the ON LINE display.	Replace the sensor that causes the error. Clean the sensor to remove stain. Replace the shutter. Replace the PU board.
(6-1-2) Toner		
Remaining amount of toner	Check if the message “Prepare toner replacement.” or “Replace the toner.” appears or not	Replace toner cartridge with new one.
(6-1-3) Color registration error detection sensor		
Sensor is dirty	Is toner or paper dust attached to the sensor?	Clean the sensor to remove stain
(6-1-4) Color registration error detection sensor shutter		
Shutter operation is faulty	Check the shutter operation by the self-diagnostic mode	Replace the shutter or tune the mechanism

(6-2) Though REG ADJUST TEST of engine maintenance function is ok, color blur occurs

Check item	Check work	Action to be taken at NG
(6-2-1) Paper feed system		
Paper feed system of the paper running path	Check if any obstacle exists in the paper feeding path, that hampers smooth paper run.	Remove the obstacle

7.5.3.(7) Entirely black print

(7-1) All black print over entire page

Check item	Check work	Action to be taken at NG
(7-1-1) High voltage contacting condition		
CH terminal	Check that the terminal coming from the printer body contacts with the high voltage terminal that is located on the left side of the ID unit when viewed from the top by visual inspection.	Replace the terminal of printer side.
CH terminal	Check that the high voltage terminal keeps the normal contacting condition on the high voltage board. Open the left cover and remove the high voltage board. Then, check that the terminal is not installed in the abnormal installation condition.	Correct the installation condition of the terminal to the normal condition.
ID unit terminal	Check that the high voltage terminal of the ID unit is contacting with the Contact Assembly normally by visual inspection. (Refer to Figure 7-3.)	Replace the ID unit or replace the high voltage board or correct the high voltage terminal. If any attempt of using new ID unit as a trial is going to be made, be sure to use the System Maintenance Menu FUSE KEEP MODE.
(7-1-2) High voltage output condition		
CH output	If high voltage probe is available as a maintenance tool, open the left cover, and check the CH output with the high voltage probe from the soldering side of the high voltage board. (The high voltage probe is not an ordinary maintenance tool.)	Replace the high voltage board.

7.5.3.(8) For the entire monochrome print, it does not being printed.

(8-1) Setting by mistake of the specific color print menu

Check item	Check work	Action to be taken at NG
(8-1-1) Status of specific color print menu		
Boot Menu item	Check if the set value item of “Process Setup” of Boot Menu is the setting of “Full Color”. (About Boot Menu, refer to Section 5.6)	Setting alteration for “Full Color”

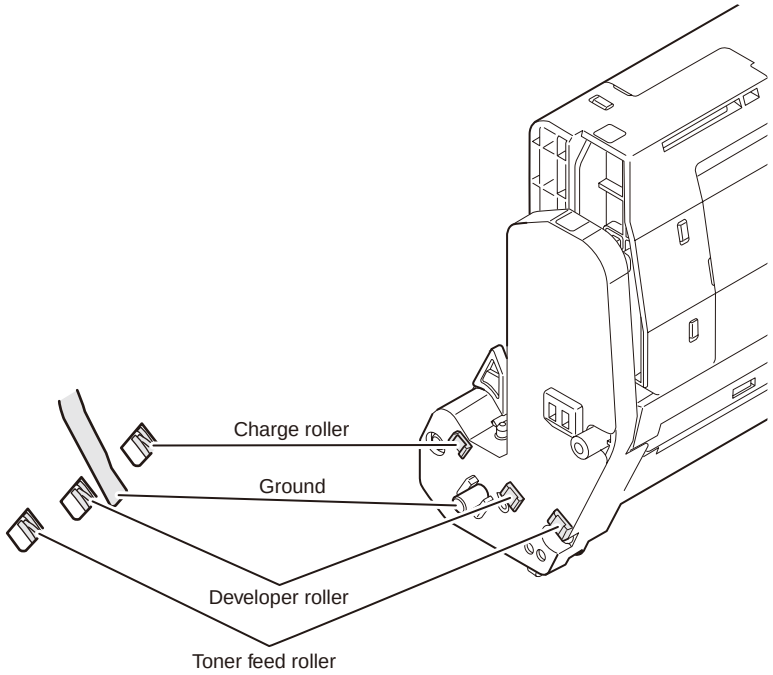


Figure 7-3

7.5.4 Network troubleshooting

(1) Print cannot be activated from Utilities.

Check item	Check work	Action to be taken at NG
(1) Check the LINK lamp		
Check if the LINK lamp (green) is illuminating or not.	Check if the HUB and a printer are connected normally. (Check that the network cable is connected normally.)	Re-connect the network cable normally.
	Confirm that the straight network cable is being used.	Replace the cable with the straight cable.
	Make an attempt to change connection of the network cable to other port of a HUB.	Try to change the HUB.
(2) Check the network information		
Check if the network information can be printed normally or not.	Press the Push switch of the NIC card to print the network information.	Re-write the NIC-F/W by using Utilities.
(3) Check contents of the network information.		
Confirm the IP address, SUB net mask and gateway address.	Confirm the IP address, SUB net mask and gateway address that are printed on the network information.	Set the IP address, SUB net mask and gateway address normally.
(4) Check if communication is possible or not through network		
Confirm if the Ping command can be sent or not from a PC to a printer.	Confirm if correct reply is returned from a printer to a PC when the PC sends the Ping to a printer.	Set the IP address, SUB net mask and gateway address normally.
(5) Check the Utilities.		
Check setting of the OKI LPR Utilities.	Check the setting items of the OKI LPR Utilities.	Set the OKI LPR Utilities setting items correctly.
(6) Check the following from an OS standard port		
Confirm the standard LPR port of the WINDOWS standard (NT, 2000, XP).	Set the standard LPR port of the WINDOWS standard (NT, 2000, XP), and confirm if printing can be performed or not.	Set the standard LPR port of the WINDOWS standard (NT, 2000, XP) correctly.

7.5.4.1 Connection error occurs with the Web browser

If the printer setting page cannot be displayed by the web browser "https://<printer IP address>", check the followings.

Establish connection by "https://<printer IP address>.

1) If the printer setting page is displayed, the followings are probable.
   Take an appropriate measure by referring to the following items.
   * Certificate is not created yet. (Or failed to create certificate.)
     → Refer to section "7.5.4.1.1 Is the certificate created?".
   * Certificate has been created but the SSL/TLS setting is turned off.
     → Refer to section "7.5.4.1.2 Is the SSL/TLS setting set to [ON]?".

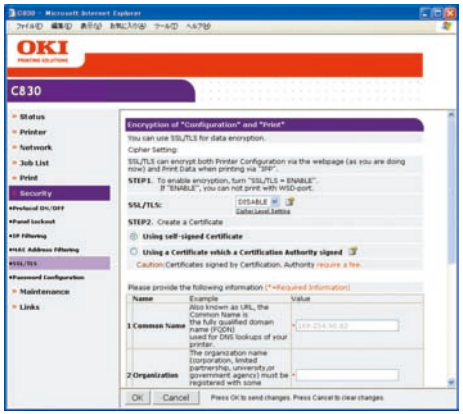
2) If the printer setting page is not displayed, the followings are probable.
   * Version number of the browser is old.
     → Refer to section "7.5.4.1.3 Check version number of the Web browser".
   * Encryption strength has been set to Strong.
     → Refer to section "7.5.4.1.3 Check encryption strength of a printer".
   * The key exchange system of a printer is not supported by the browser. (Compatibility problem)
     → Refer to section "7.5.4.1.5 Check the key exchange type of the certificate".

7.5.4.1.1 Is the certificate created?

Log-on in as the administrator, and select "Security" → "Encryption (SSL/TLS)".

If the following screen is displayed, certificate of the printer is not created yet. (The same screen is displayed when failed to create certificate.)

Solution: Create certificate by referring to the User's Manual (Advanced edition).



Before creating certificate (default state)

7.5.4.1.2 Is the SSL/TLS setting set to [ON]?

Log-on in as the administrator, and select "Security" → "Encryption (SSL/TLS)".

If the following screen is displayed, certificate has already been created, but the SSL/TLS setting is turned [OFF].

Solution : Set the SSL/TLS setting to [ON].

7.5.4.1.3 Check version number of the Web browser

Check version number of the Web browser in use.

How to check version number.

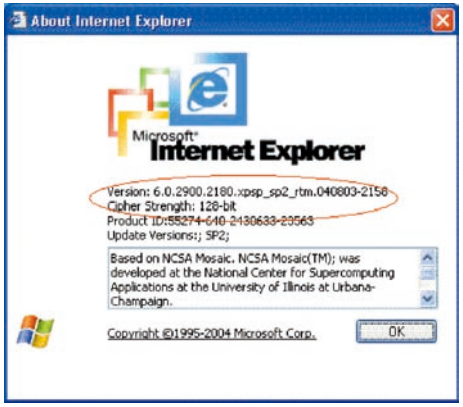
For Internet Explorer

Launch the browser and select "HELP" → "Version information".

Recommended version is Internet Explorer 5.5 and higher.

Solution : Install the newest web browser. Alternately, install the high encryption pack.

If any version that is older than the recommended version is used, communication can become possible sometimes when the encryption strength is set to "Weak". If the encryption strength is set to "Weak", security level lowers. To change the encryption strength, refer to section "7.5.4.1.4 Confirm encryption strength of a printer".


About Internet Explorer
Microsoft
Internet Explorer
Version: 6.0.2900.2180.xpsp_sp2_rtm.040803-2158
Cipher Strength: 128-bit
Product ID: 55274-640-2430633-23563
Update Versions:; SP2;
Based on NCSA Mosaic. NCSA Mosaic(TM); was developed at the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign.
Copyright ©1995-2004 Microsoft Corp.
OK

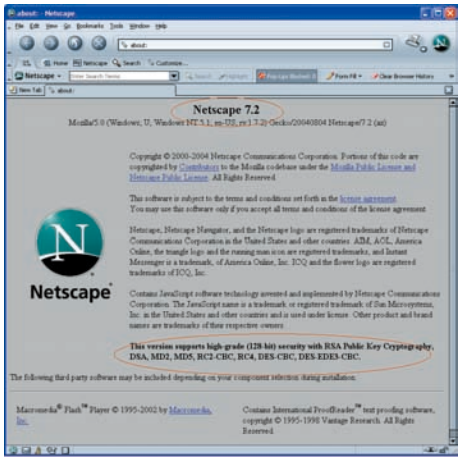
For Netscape

Launch the web browser and select "HELP" → "Netscape".

Recommended version is Netscape 6 and higher.

Solution : Install the newest web browser.

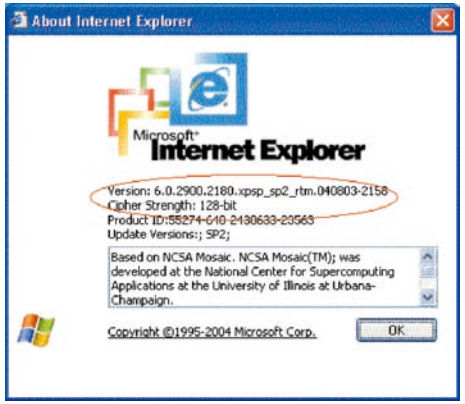
If any version that is older than the recommended version is used, communication can become possible sometimes when the encryption strength is set to "Weak". If the encryption strength is set to "Weak", security level lowers. To change the encryption strength, refer to section "7.5.4.1.4 Confirm encryption strength of a printer".

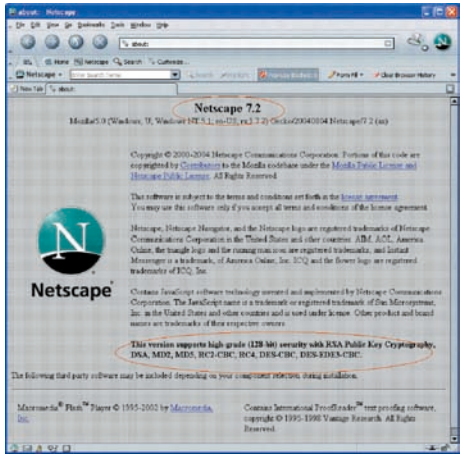


7.5.4.1.4 Confirm encryption strength of a printer

Version display of the browser that is confirmed by section "7.5.4.1.3 Check version number of the Web browser" has description on encryption strength of the browser. The browser in which the encryption strength is not set to 128 bits, the browser cannot establish communication with the printer in which the encryption strength is not set to "Standard".

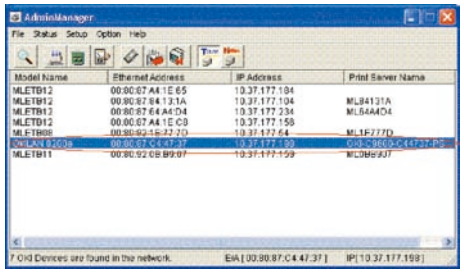
Either, upgrade the browser until it supports 128 bits (high encryption) or set the printer encryption strength to "Weak".


About Internet Explorer
Microsoft
Internet Explorer
Version: 6.0.2900.2180.xpsp_sp2_rtm.040803-2158
Cipher Strength: 128-bit
Product ID:55274-640-2430633-20563
Update Versions:; SP2;
Based on NCSA Mosaic. NCSA Mosaic(TM); was developed at the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign.
Copyright ©1995-2004 Microsoft Corp.
OK

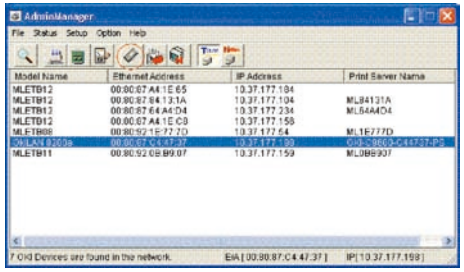


Change encryption strength with AdminManager

1. Launch AdminManager and select (by highlighting) a desired printer from the printer list.

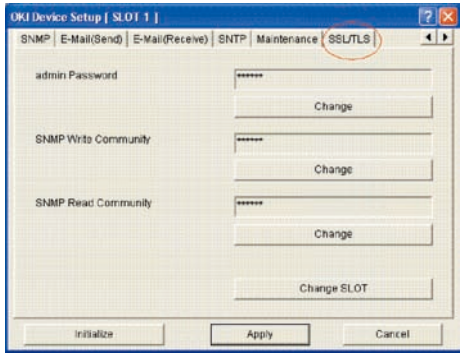


2. Press the "Oki Device Setup" button, or alternately select "Setup" → "Oki Device Setup", and open the setup screen.

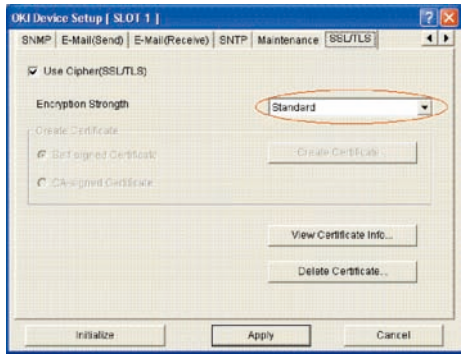


3. Input the administrator password and open the setup screen as an administrator.

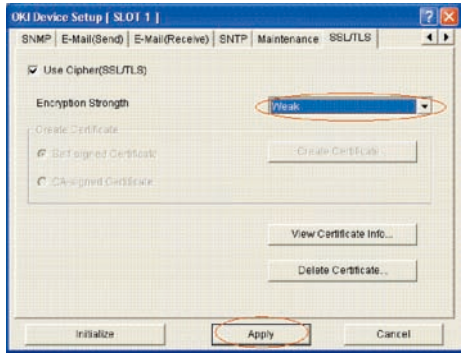
4. Select the "SSL/TLS" tab.



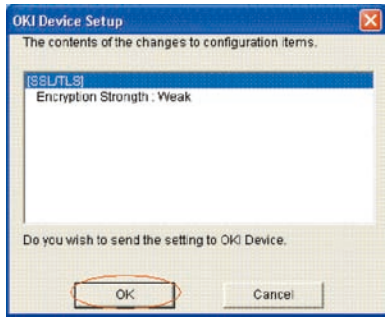
5. Check the "Encryption Strength".



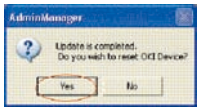
6. Set the "Encryption Strength" to "Weak" and press the "Apply" button.



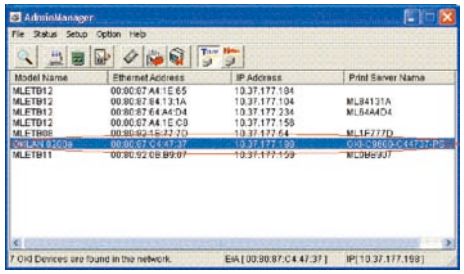
7. Check the setup contents, and press "OK".


OKI Device Setup
The contents of the changes to configuration items.
[SSL/TLS]
Encryption Strength : Weak
Do you wish to send the setting to OKI Device.
OK
Cancel

8. A message prompting your confirmation will be displayed. Click "Yes".
   (NIC reboots in order to reflect the setup value.)



9. If the printer is displayed in the printer list, the setup is complete with success.



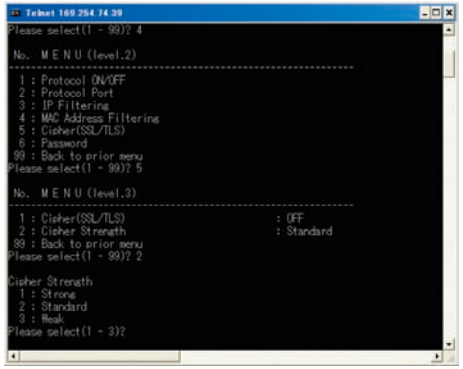
Solution: Set the encryption strength to "Weak".

How to change encryption strength with Telnet

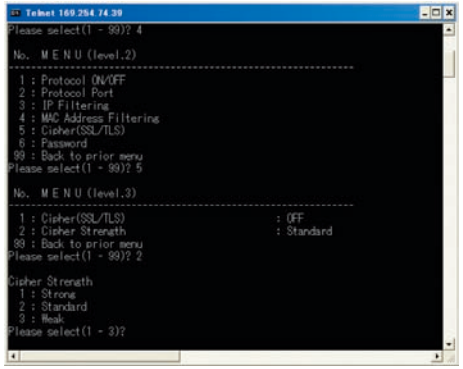
Note! Telnet cannot be used if it remains in the default setting. To change the encryption strength, Telnet must be set to Enable.

Select the command prompt (DOS prompt) and enter "Telnet <printer IP address>", and press Return.

Establish connected using administrator user name and password


Telnet 169.254.74.39
Please select(1 - 99)? 4
No. M E N U (level.2)
1 : Protocol ON/OFF
2 : Protocol Port
3 : IP Filtering
4 : MAC Address Filtering
5 : Cipher(SSL/TLS)
6 : Password
99 : Back to prior menu
Please select(1 - 99)? 5
No. M E N U (level.3)
1 : Cipher(SSL/TLS) : OFF
2 : Cipher Strength : Standard
99 : Back to prior menu
Please select(1 - 99)? 2
Cipher Strength
1 : Strong
2 : Standard
3 : Weak
Please select(1 - 3)?

Select the menus in this order: [4: Security Config] → [5: Cipher (SSL/TLS)] → [2: Cipher Strength]. Then, change the cipher strength as desired (1: Strong, 2: Standard, 3: Weak).


Telnet 169.254.74.39
Please select(1 - 99)? 4
No. M E N U (level.2)
1 : Protocol ON/OFF
2 : Protocol Port
3 : IP Filtering
4 : MAC Address Filtering
5 : Cipher(SSL/TLS)
6 : Password
99 : Back to prior menu
Please select(1 - 99)? 5
No. M E N U (level.3)
1 : Cipher(SSL/TLS) : OFF
2 : Cipher Strength : Standard
99 : Back to prior menu
Please select(1 - 99)? 2
Cipher Strength
1 : Strong
2 : Standard
3 : Weak
Please select(1 - 3)?

7.5.4.2 Print operation is not possible

If print operation is not possible by using the encrypted IPP printer, check the followings.

Establish connection by "https://<printer IP address>.

1) If the printer setting page is displayed, the followings are probable.
   Take an appropriate measure by referring to the following items.
   * Certificate is not created yet. (Or failed to create certificate.)
     → Refer to section "7.5.4.1.1 Is the certificate created?".
   * Certificate has been created but the SSL/TLS setting is turned off.
     → Refer to section "7.5.4.1.2 Is the SSL/TLS setting set to [ON]?".

2) If the printer setting page is not displayed, the followings are probable.
   Take an appropriate measure by referring to the following items.
   * Version number of the browser is old.
     → Refer to section "7.5.4.1.3 Check version number of the Web browser".
   * Encryption strength has been set to Strong.
     → Refer to section "7.5.4.1.4 Check encryption strength of a printer".
   * The key exchange system of a printer is not supported by the browser. (Compatibility problem)
   * The OS does not support the IPP (encrypted) printing.
     → Refer to section "7.5.4.2.1 Check OS (Operating System)".
   * IPP (encrypted) printer is not created yet.
     → Refer to section "7.5.4.2.2 Is the Printer created?".
   * IPP setup of the Printer is not Enabled.
     → Refer to section "7.5.4.2.3 Is the IPP setting set to Enabled?".

7.5.4.2.1 Check OS (Operating System)

The IPP print (encryption) function is supported by Windows 2000, Windows XP, Windows 2003 Server and Windows Vista only.

It is not supported by other operating systems.

7.5.4.2.2 Is the Printer created?

Printer may not be created normally.

To use the IPP print (encryption) function, the Printer must have been created by setting port to URL" HYPERLINK "https://<" https://< printer IP address>/ipp" when creating the Printer.

For more details of Printer creation method, refer to the User's Manual (Advanced edition).

7.5.4.2.3 Is the IPP setup Enabled?

The IPP setup may not be set to Enable.

As the default setting of printer, IPP has been set to Disable.

To use the IPP print (encryption) function, the IPP setup must have been set to Enable.

For the method of changing the IPP setup, refer to the User's Manual (Advanced edition).

7.5.4.3 Cannot create Certificate

When Certificate cannot be created, the following causes are probable. Take an appropriate measure by referring to the following items.

* Required input items are not fully entered
  → Refer to section "7.5.4.3.1 Required input items are not fully entered".
* The printer is printing.
  → Refer to section "7.5.4.3.2 The printer is printing".

7.5.4.3.1 Required input items are not fully entered

Unless all of the required input items are fully entered, Certificate cannot be created.

When creating Certificate, entry into the items of Common Name, Organization, Locality, State/Province, Country/Region is the must item. (Entry into Organizational Unit can be omitted.)

Solution : Enter the appropriate value into all of the required input items, and execute creation of Certificate.
For more details of the input items, refer to the User's Manual (Advanced edition).

7.5.4.3.2 The printer is printing.

Certificate cannot be created while printing is in progress. (Print operation has priority.)

Solution : Create Certificate when all other operations are complete.
During creation of self-sign certification, during creation of CSR for Certificate of certifying authority, and during installation of Certificate, the printer must not perform any other operations (such as printing) until the operation is complete (creation of self-sign certification is complete, creation of CSR is complete, and installation of Certificate is complete).

7.5.4.4 Installation of Certificate is not possible

When installation of Certificate fails, the following causes are probable.

Take an appropriate measure by referring to the following items.

* User has changed the IP address of a printer to other IP address than the "IP address during creation of CSR".
  → Refer to section "7.5.4.4.1 IP address of the printer has been changed".
* "Network card is initialized" while user is applying issuance of certification to certifying authority (i.e., in the state of Waiting for Installation of Certificate).
  → Refer to section "7.5.4.4.2 "Network card is initialized".
* "Deletion of CSR" was executed while user is applying issuance of certification to certifying authority (i.e., in the state of Waiting for Installation of Certificate).
  → Refer to section "7.5.4.4.3 "Deletion of CSR" is executed.
* Intermediate Certificate is installed.
  → Refer to section "7.5.4.4.4 "Installation of intermediate Certificate" is desired.

7.5.4.4.1 User has changed the IP address of a printer

If IP address of a printer is changed to other IP address than the "IP address during creation of CSR", error is issued and installation of Certificate become impossible.

If the changed setup is only the "IP address of printer", error will not be issued if the IP address is returned to the original address.

Solution : Return the IP address of printer back to the "IP address during creation of CSR", and then install Certificate.

Note! Do not change any setup of printer while creation of Certificate of certifying authority is in progress (during the period starting from creation of CSR up until installation of Certificate). If changed, the already issued Certificates become invalid necessitating re-setup starting from the very beginning. If printer setup is changed after Certificate is obtained, the "Security warning" is displayed on the web browser.
If IP address of printer is changed, the Certificate becomes invalid. In the case of Certificate of certifying authority requiring some charge for issuance, another charge may be required for creating Certificate once again. For details, contact certifying authority.)

7.5.4.4.2 "Network card is initialized"

If network card is initialized (to default setup) while creation of Certificate of certifying authority is in progress (during the period starting from creation of CSR up until installation of Certificate), the setup information of the Certificate is deleted. If information is deleted once, the information cannot be recovered by any means. (Even when the same information as before is entered, the same Certificate cannot be created.)

Solution : Repeat all the steps from the very beginning. (Certificate under application is already invalid.)

7.5.4.4.3 "CSR is deleted"

If CSR is deleted (if Certificate is deleted) while creation of Certificate of certifying authority is in progress (during the period starting from creation of CSR up until installation of Certificate), the setup information of the Certificate is deleted. If information is deleted once, the information cannot be recovered by any means. (Even when the same information as before is entered, the same Certificate cannot be created.)

Solution : Repeat all the steps from the very beginning. (Certificate under application is already invalid.)

7.5.4.4.4 Installation of intermediate Certificate is desired

Some certification authorities use the procedure of installing the SSL server Certificate (printer Certificate) and the intermediate Certificate into printer as the same time.

However, printer of this model supports installation of only a single Certificate, intermediate Certificate cannot be installed in printer. Be sure to install the SSL server Certificate in printer.

When installation of intermediate Certificate is required, install the intermediate Certificate not in printer, but in client PC (browser).

For the method of installing the intermediate Certificate in client PC (browser), refer to the following.

Installing the intermediate Certificate (or CA certificate) in client PC (browser).

[Procedure]

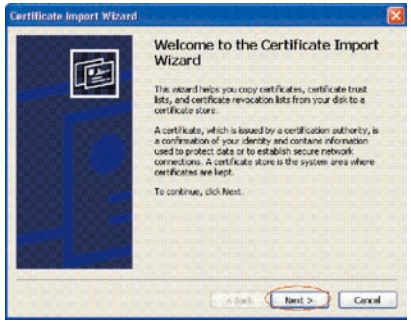
1. Double-click the intermediate Certificate (or CA certificate) that is issued by certifying authority, on a client PC to display the intermediate Certificate (or CA certificate).

   ex.) For an example, the intermediate Certificate of Comodo has the text (PEM) format: ComodoJapanCA.Crt, and the binary format: ComodoJapanCA.cer. Either one of these formats can be opened. (Same result can be obtained.)

   Open either ComodoJapanCA.crt or ComodoJapanCA.cer.

2. Press the "General" tab of the displayed Certificate information, and press "Install Certificate" button.

3. The "Certificate Import Wizard" is displayed. Install Certificate in accordance with the displayed procedure. Select "Automatically select the certificate store based on the types of certificate". Then, the Certificate will be installed automatically.


Certificate Import Wizard
Welcome to the Certificate Import Wizard
Next >
Cancel
Certificate Import Wizard
Certificate Store
Automatically select the certificate store based on the type of certificate
Place all certificates in the following store
< Back
Next >
Cancel

7.5.4.5 Other questionnaires

Other probable questionnaires are described below.

7.5.4.5.1 Time required for creation of Certificate

It takes several ten seconds for creation of Certificate.

7.5.4.5.2 Communication time when the encryption function is enabled

A time longer than the ordinary communication time is required for communication when the encryption function is used.

7.5.4.5.3 Can the encrypted printing be performed by any printer other than IPP?

Answer : Any printer other than IPP cannot encrypt printing.
Only the IPP printing can encrypt printing.

7.5.4.5.4 What will happen if SSL/TLS is turned OFF after Certificate has been created (or installed)?

Answer : Certificate will be kept saved as it is.
If SSL/TLS is turned ON again, the Certificate becomes usable.

7.5.4.5.5 Want to change the port number

Answer : The port number during the SSL/TLS communication is fixed to 443.
It cannot be changed.

7.5.4.5.6 The error message "The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority" is displayed.

If this error is indicated, it means that the certificate which is installed in a printer is self-sign certificate.

In the case of self-sign certificate, error (security warning) will not be displayed if the self-sign certificate of printer is installed in the client PC.

In the case of certificate of certifying authority, error (security warning) will not be displayed if the CA certificate of certifying authority is installed in the client PC.

Solution : Install certificate in the client PC (browser).

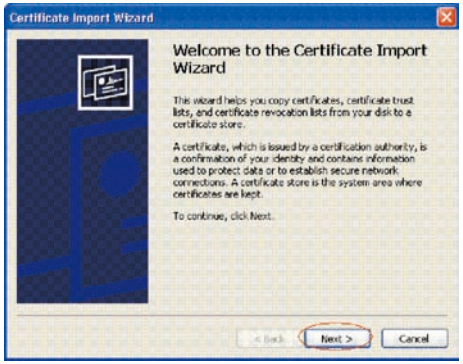
[Procedure]

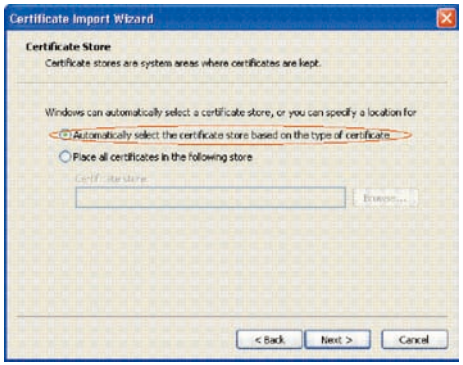
1. Click the "View Certificate" button on the error (security warning) screen.

Security Alert
Information you exchange with this site cannot be viewed or changed by others. However, there is a problem with the site's security certificate.
The security certificate was issued by a company you have not chosen to trust. View the certificate to determine whether you want to trust the certifying authority.
The security certificate date is valid.
The security certificate has a valid name matching the name of the page you are trying to view.
Do you want to proceed?
Yes
No
View Certificate

2. Press the "General" tab of the displayed Certificate information, and press "Install Certificate" button.

3. The "Certificate Import Wizard" is displayed. Install Certificate in accordance with the displayed procedure. Select "Automatically select the certificate store based on the types of certificate". Then, the Certificate will be installed automatically.


Certificate Import Wizard
Welcome to the Certificate Import Wizard
This wizard helps you copy certificates, certificate trust lists, and certificate revocation lists from your disk to a certificate store.
A certificate, which is issued by a certification authority, is a confirmation of your identity and contains information used to protect data or to establish secure network connections. A certificate store is the system area where certificates are kept.
To continue, click Next.
< Back
Next >
Cancel


Certificate Import Wizard
Certificate Store
Certificate stores are system areas where certificates are kept.
Windows can automatically select a certificate store, or you can specify a location for
Automatically select the certificate store based on the type of certificate
Place all certificates in the following store
Browse...
< Back
Next >
Cancel

7.5.4.5.7 The error message "Name of security certificate is invalid or does not match the site name" is displayed.

It means that the IP address of printer is different from the IP address that is described on certificate, or from the IP address when the certificate is created.

Solution : Return the IP address of printer back to the address when self-sign certificate is created, or to the address when CSR is created.

7.5.4.6 Restrictions when using Internet Explore 7

Several restrictions are imposed when using Internet Explore 7. This is because security restriction became more severe in IE7.

7.5.4.6.1 Warning indication when SSL is made valid by self-sign certificate

When SSL is made valid by self-sign certificate, the following picture is obtained when web page is accessed, and page will not be displayed.

Web display when SSL is made valid by self-sign certificate

Solution : When "Continue browsing this site (not recommended)" is clicked on the warning screen, the web page will be displayed.

However, it has no effect on the web page function. It can be used for browsing or to change setting of printer setup.

Web page display when "Continue browsing this site (not recommended)" is clicked.

7.6 Fuse check

If the following error is issued, check the corresponding fuse of the CU control board, PU control board and high voltage power supply board.

(Refer to Table 7-6.)

Table 7-6 Fuse error

Fuse Name		Error Description	Insert Point	Resistance
PU board	F1	Service call 918 (However, if the Duplex unit is not installed, it is the 2nd/3rd hopping error.)	Duplex, 2nd/3rd 24V	Less than 1 ohm
	F2	Power supply shut-down	PU board 5V	
	F3	ID UP/DOWN error. Service call 142	Belt motor, ID UP/DOWN motor 24V	
	F4	Cover open	High voltage power supply board, ID cooling fan, fuser fan 24V	
	F5	Service call 122	Power supply fan, feed solenoid, feed motor 24V	
High voltage power supply board	IP901	Cover open	High voltage 24V	
	IP902	Service call 121	High voltage 5V	
CU board	F506	• Service call 131 to 134 error • All white page print	LED HEAD 5V	
	F505	Service call 131 to 134 error	LED HEAD 3.3V	
	F501	HDD error	HDD 5V	
	F503	CENTRONIX interface error	CENTRONIX interface 5V	
	F502	CENTRONIX interface error	CENTRONIX interface 3.3V	
	F507	Host USB error	PCI 5V	

7.7 Paper cassette switches versus Paper size correspondence table

Bit Number				Dial Indication Size (OEL)		Dial Indication Size (ODA)	
1	2	3	4	TRAY1	TRAY2/3	TRAY1	TRAY2/3
H	H	H	H	No cassette	No cassette	No cassette	No cassette
L	L	L	L	A4	A4	A4	A4
H	H	L	L	A6 SEF		A4 SEF	A4 SEF
L	H	L	L	A5 SEF	A5 SEF	A5 SEF	A5 SEF
L	H	H	L	LTR LEF	LTR LEF	LTR LEF	LTR LEF
H	H	H	L	Tabloid	Tabloid	LTR SEF	LTR SEF
H	L	H	L	B5 LEF	B5 LEF	Tabloid	Tabloid
H	L	H	H	B4	B4	LEGAL	LEGAL
L	L	L	H	A4 SEF	A4 SEF	EXEC	EXEC
L	L	H	L	A3	A3	A3	A3
L	L	H	H	Reserved	Reserved	Reserved	Reserved
L	H	L	H	Reserved	Reserved	Reserved	Reserved
H	H	L	H	Reserved	Reserved	Reserved	Reserved
H	L	L	H	Reserved	Reserved	Reserved	Reserved
L	H	H	H	Reserved	Reserved	Reserved	Reserved
H	L	L	L	Reserved	Reserved	Reserved	Reserved
Press of SW: L							

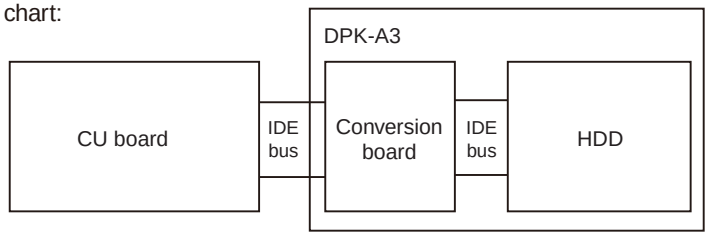
7.8 Data protection kit-A3

7.8.1 Data protection kit-A3 (DPK-A3) overview

Purpose:
By encrypting data to be stored in HDD, data is protected from eavesdropping even when HDD is stolen.

Method:
The conversion board in which encryption chip is installed is inserted in between the CU board and HDD.

Connected chart:



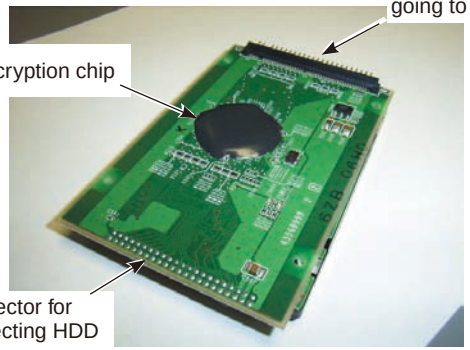
Shape of metal plate is different from HDD unit of C5900. Thickness and others are different.

Assembled state of Data protection kit-A3

HDD in which board is installed

<Top panel>

<Rear panel>



Specification for safety:

- If the data protection kit-A3 is removed from printer or swapped by others, it is informed to user as a warning. (Error processing)
- Program download and EEPROM read-out are prohibited so that the data protection kit-A3 works safely.
  Consequently, restrictions that have not been applied are newly added after the data protection kit-A3 is installed in C830/C821.
- Normal operation can be performed when the CU board including EEPROM and the data protection kit-A3 are installed as a pair. (Combination with the PU board and with engine is not restricted.)

Normal configuration (HDD is not used. Normal HDD is installed)

When the CU board becomes faulty:	Replace the CU board (User's EEPROM should be used.)
When the normal HDD becomes faulty:	Replace the HDD only.

After the data protection kit-A3 is installed

When the CU board becomes faulty:	Replace the CU board (EEPROM of the maintenance board should be used.)
	Replacement of the data protection kit-A3 is not required, but internal data are deleted.
When the data protection kit-A3 became fault:	Replace both of the data protection kit-A3 and the CU board. (EEPROM of the maintenance board should be used.)

- After the data protection kit-A3 is installed, the CU board is linked to a specific HDD. Therefore, the printer cannot be used without the specific HDD.
  The link can only be cancelled by the Takasaki Design department.
- After the data protection kit-A3 is installed, some of the PJL functions cannot be used.
  - Downloading of all of the F/W (including NIC F/W and PU F/W)
  - Read and write of the EEPROM (CU and PU)

  Upgrading of PU F/W and read/write of PU EEPROM after the data protection kit-A3 is installed:

  Replace the CU board once with the new CU board in which the data protection kit-A3 has not been installed before.

  Upgrading of CU F/W

  Replace the CU board with new CU board in which the CU F/W is already upgraded. Data in the data protection kit-A3 will be deleted.

Error processing flow when the error 001-073, -254 has occurred (CU board related error)

Step 1	Does the printer work normally when the CU board is replaced by the maintenance CU board ①? (Be sure to use EEPROM of the maintenance board. Note 1) (Do not install the data protection kit-A3) ↓ Yes	→ No	(Analysis is not possible.) Replace the printer.
Step 2	Does the printer start up normally when the user's data protection kit-A3 is installed? ↓ No	→ Yes	Maintenance is complete. (CU board failure) Re-setting of IP address and others are required: Note 1 and Note 4
Step 3	Does the printer start up normally when the data protection kit-A3 ① of maintenance use is installed? ↓ No (Error 253 occurs) Note 2	→ Yes	Maintenance is complete. (CU board failure, and data protection kit-A3 failure) Re-setting of IP address and others are required: Note 1, 3 and 4
Step 4	Does the printer work normally when the maintenance CU board ② and the data protection kit-A3 ① for maintenance use are installed instead of original boards? ↓ No Replace the printer. (Analysis is not possible.)	→ Yes	Maintenance is complete. (CU board failure, and data protection kit-A3 failure) Re-setting of IP address and others are required: Note 1, 3 and 4

Note1 : When EEPROM of user's board is used, error 253 (HDD unmatch) occurs. Re-set the user environment such as IP address by using the EEPROM of maintenance board.

Note2 : If a part of the functions of the data protection kit-A3 that user is using became faulty, the system can be recovered by using Step 3 if user's data protection kit-A3 is completely faulty because there is no restriction on combination in this case. If Step 2 is used, there is a restriction in combination of the maintenance CU board and user's data protection kit-A3. Therefore, if different HDD is connected afterwards, error 253 will be issued.

Note3 : Data protection kit A3 after replacing should be collected by either of the following methods

1. Disassemble the kit, and deliver only HDD storing user secret data to a user.
2. Take any measures to prevent information leak.

Note4 : When the CU board is replaced, the printer cannot be used without the specified HDD because the user's CU board has been linked to the specific HDD. Until the link is cancelled by design department, it cannot be used. (Situation should be reported to design department.)

Error processing flow when error 252, 253, 256 has occurred (HDD related error -①)

Error display	Error contents
Error 252	Data protection kit-A3 does not exist.
Error 253	User's data protection kit-A3 does not exist, but different data protection kit-A3 is installed with the HDD.
Error 256	Invalid HDD is installed.

Step 1	Re-connect the printer to the user's data protection kit-A3 that is connected to the printer in the very beginning when user starts using the system. ↓ No (If user's data protection kit-A3 that is connected in the very beginning does not exist)	→ Yes	Maintenance is complete. (User HDD has been removed.)
Step 2	Does the printer work normally when the maintenance CU board and the data protection kit-A3 for maintenance use are installed instead of original boards? ↓ No	→ Yes	Maintenance is complete. (User HDD has been removed.) Re-setting of IP address and others are required: Note 1, 3 and 4
Step 3	Replace the printer. (Analysis is not possible.)		

Note1 : When EEPROM of user's board is used, error 253 (HDD unmatch) occurs. Re-set the user environment such as IP address by using the EEPROM of maintenance board.

Note3 : Data protection kit A3 after replacing should be collected by either of the following methods

1. Disassemble the kit, and deliver only HDD storing user secret data to a user.
2. Take any measures to prevent information leak.

Note4 : When the CU board is replaced, the printer cannot be used without the specified HDD because the user's CU board has been linked to the specific HDD.

Error processing flow when error 251, 253 has occurred (HDD related error -②)

Error display	Error contents
Error 251	HDD hardware failure ①
Error 255	HDD kit hardware failure

Step 1	Does the printer work normally when the maintenance CU board ① and the data protection kit-A3 ② for maintenance use are installed instead of original boards? ↓ No	→ Yes	Maintenance is complete. (HDD failure) Re-setting of IP address and others are required: Note 1, 3 and 4
Step 2	Replace the printer. (Analysis is not possible.)		

Note1 : When EEPROM of user's board is used, error 253 (HDD unmatch) occurs. Re-set the user environment such as IP address by using the EEPROM of maintenance board.

Note3 : Data protection kit A3 after replacing should be collected by either of the following methods

1. Disassemble the kit, and deliver only HDD storing user secret data to a user.
2. Take any measures to prevent information leak.

Note4 : When the CU board is replaced, the printer cannot be used without the specified HDD because the user's CU board has been linked to the specific HDD.

Error processing flow when error 250, 257 has occurred (HDD related error -③)

Error display	Error contents
Error 250	HDD data damage or hardware failure
Error 257	HDD data damage or hardware failure

Step 1	250: Does the printer start up normally when the Admin menu – Disk erase is executed? 257: Does the printer start up normally when the Admin menu – Check Disk is executed? ↓ No (If user's data protection kit-A3 that is connected in the very beginning does not exist)	→ Yes	Maintenance is complete. (Data stored in HDD is partly damaged.)
Step 2	Does the printer work normally when the maintenance CU board ① and the data protection kit-A3 ① for maintenance use are installed instead of original boards? ↓ No	→ Yes	Maintenance is complete. (HDD failure) Re-setting of IP address and others are required: Note 1, 3 and 4
Step 3	Replace the printer. (Analysis is not possible.)		

Note1 : When EEPROM of user's board is used, error 253 (HDD unmatch) occurs. Re-set the user environment such as IP address by using the EEPROM of maintenance board.

Note3 : Data protection kit A3 after replacing should be collected by either of the following methods

1. Disassemble the kit, and deliver only HDD storing user secret data to a user.
2. Take any measures to prevent information leak.

Note4 : When the CU board is replaced, the printer cannot be used without the specified HDD because the user's CU board has been linked to the specific HDD.

If the printer does not start up normally while showing communication error and LCD does not show any display.

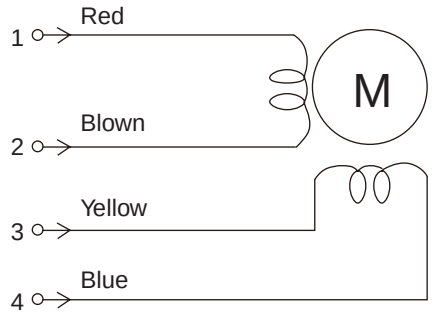
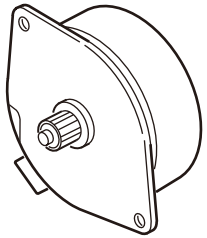
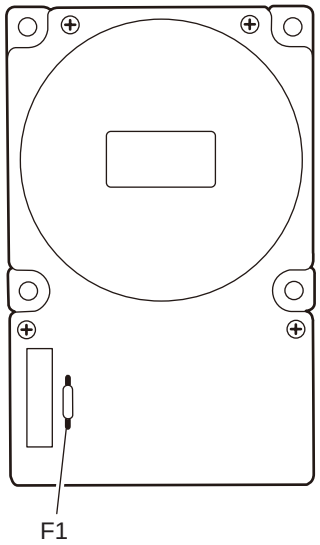
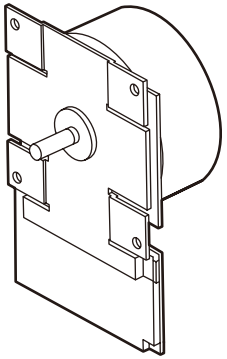
Step 1	Perform processing in accordance with the usual M/M. ↓ If the trouble cannot be solved.		
Step 2	Does the error 252 occur when the user's protection kit-A3 is removed? ↓ Yes (Data protection kit-A3 is partly damaged so that printer does not start up normally.)	→ No	Implement the error 001-073.254 sheet processing.
Step 3	Can the user's data protection kit-A3 be connected and can the Admin menu be started up? ↓ Yes (Data protection kit-A3 is partly damaged so that printer does not start up normally.)	→ No	Implement the error 001-073.254 sheet processing.
Step 4	Does the printer recover by executing the Admin menu – Check all sector? ↓ No	→ Yes	Maintenance is complete. (Data stored in HDD is partly damaged.)
Step 5	Does the printer recover by executing the Admin menu – HDD Format? Note 1 ↓ No Implement the error 001-073.254 sheet processing.	→ Yes	Maintenance is complete. (Data stored in HDD is partly damaged.)

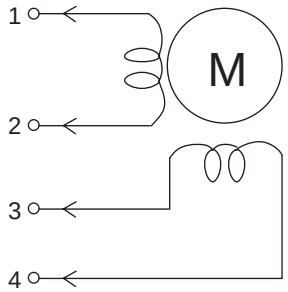
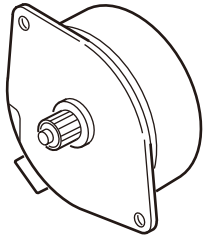
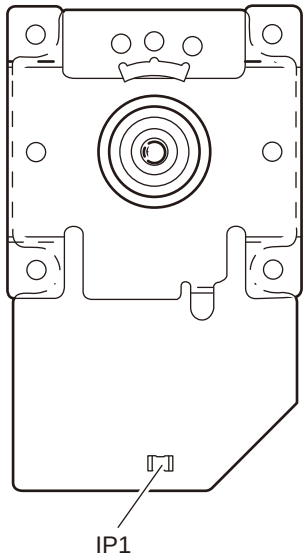
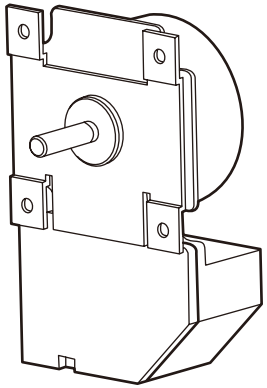
Note1 : The Admin menu "HDD INITIALIZE" is not displayed unless the Admin menu "INITIAL LOCK" is set to "NO". (Default setting is "YES".)

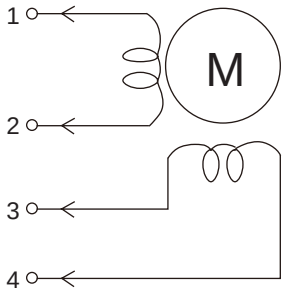
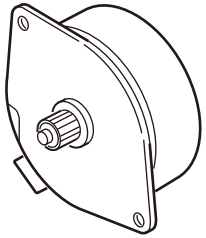
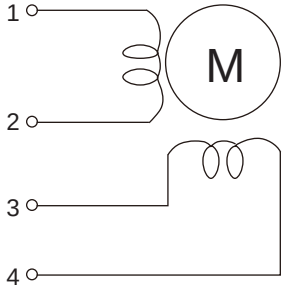
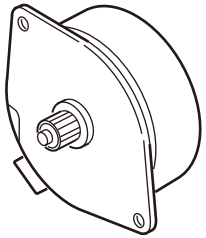
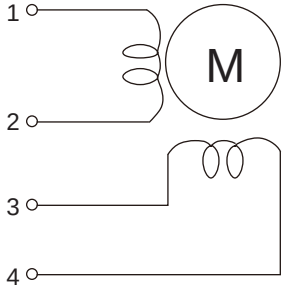
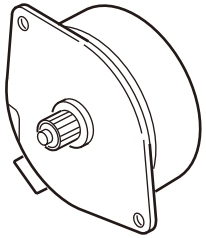
8. CONNECTION DIAGRAMS

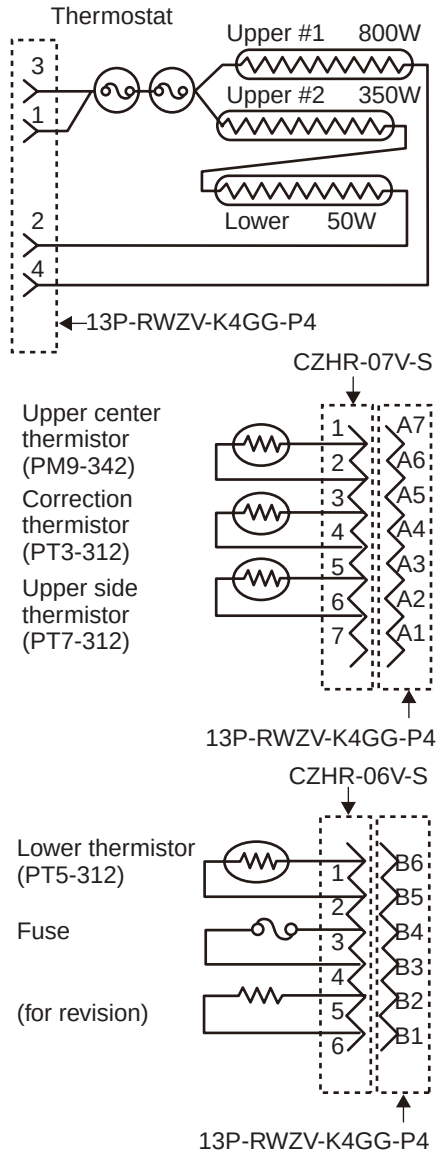
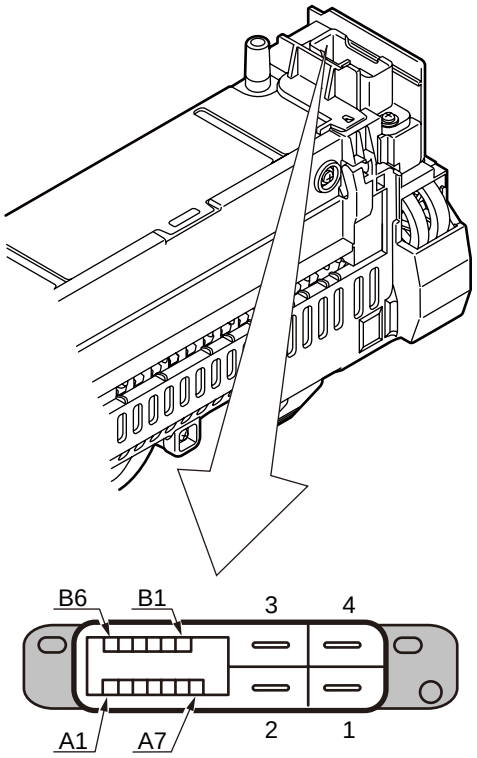
8.1 Resistance value check.....237
8.2 Parts location.....241
8.3 F/W version number.....251

8.1 Resistance value check

Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
Transport belt motor			Between pin-1 and pin-2: 3.4Ω Between pin-3 and pin-4: 3.4Ω
ID motor			Across both ends of F1: 1Ω or less

Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
ID up/down motor			Between pin-1 and pin-2: 6.1Ω Between pin-3 and pin-4: 6.1Ω
Fuser unit motor			Across both ends of IP1: 1Ω or less

Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
Feed motor			Between pin-1 and pin-2: 3.4Ω Between pin-3 and pin-4: 3.4Ω
Both-sided print motor			Between pin-1 and pin-2: 2.4Ω Between pin-3 and pin-4: 2.4Ω
2nd tray feed motor			Between pin-1 and pin-2: 3.4Ω Between pin-3 and pin-4: 3.4Ω

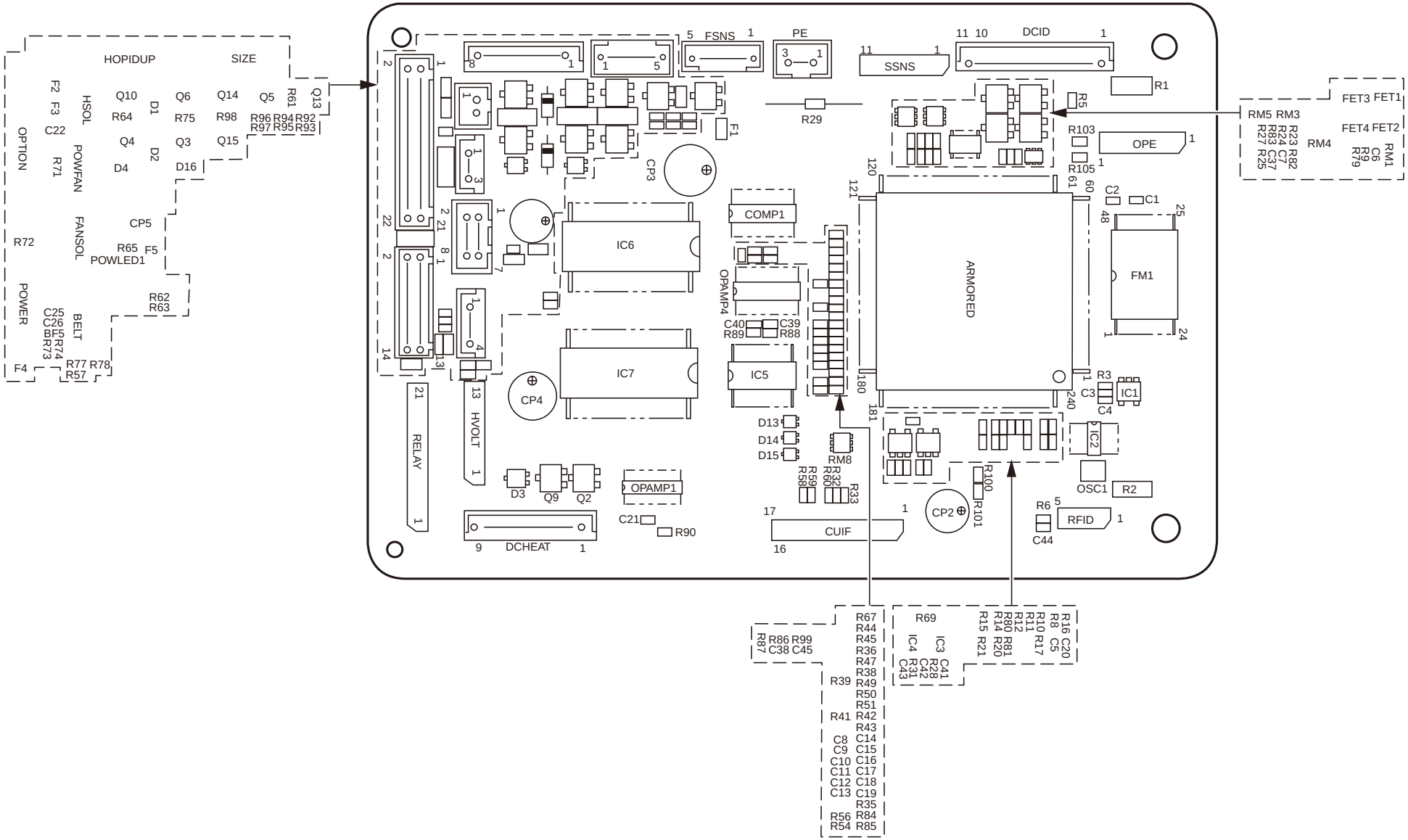
Unit	Electrical circuit diagram, connection	Part outside view	Resistance value
Fuser unit			Upper center thermisor Between pins A-6 and A-7: Approx. 8058kΩ to 5338kΩ (0 to 93°C) Upper side thermisor Between pins A-2 and A-3: Approx. 104.5kΩ to 806.5kΩ (0 to 43°C) Lower thermisor Between pins B-5 and B-6: Approx. 104.5kΩ to 806.5kΩ (0 to 43°C) Correction thermisor Between pins A-4 and A-5: Approx. 104.5kΩ to 806.5kΩ (0 to 43°C)

8.2 Parts location

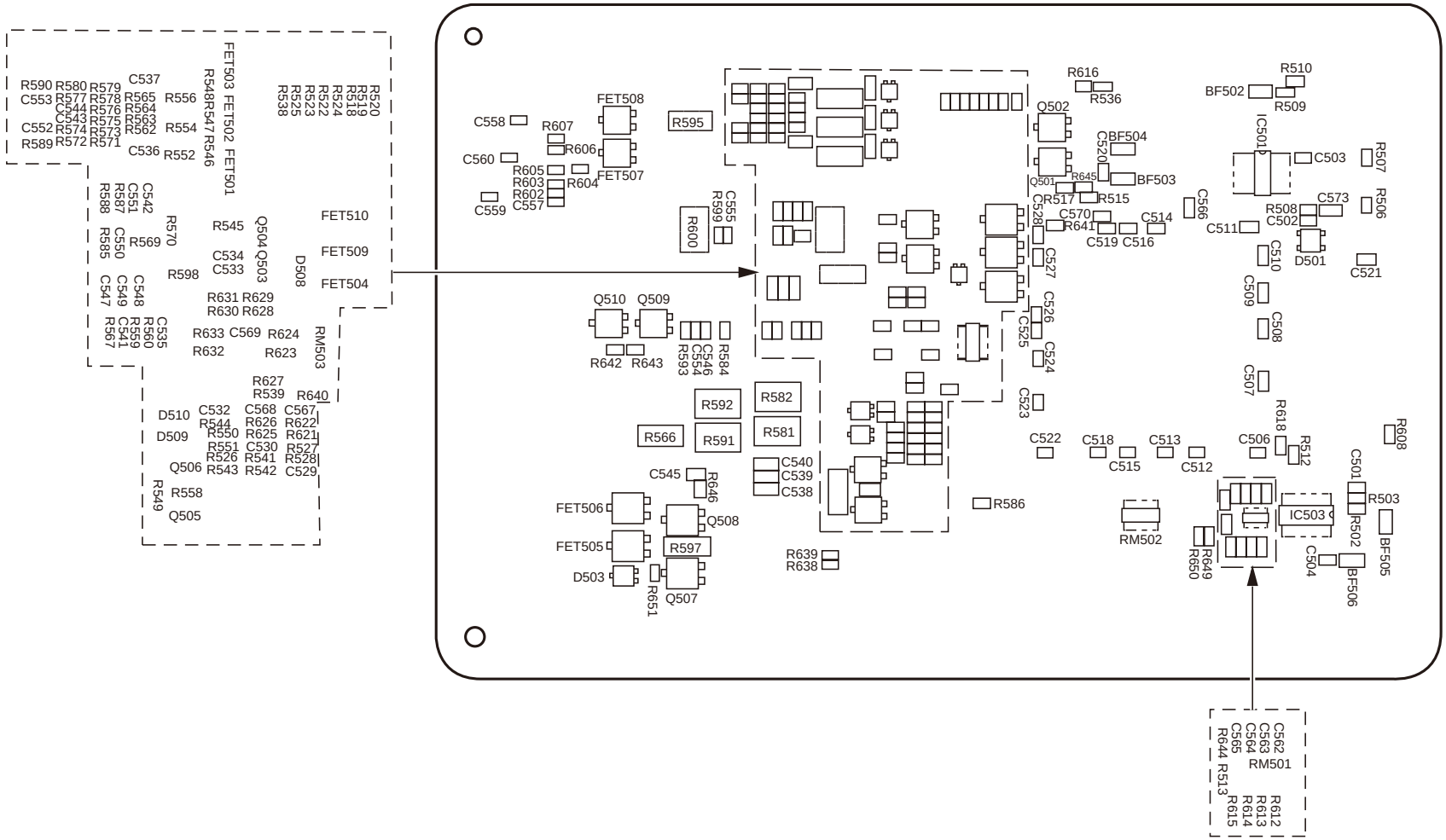
(1) Print Engine Controller PCB (PU PCB)

Component side

※ A specified product number is shown in RSPL.

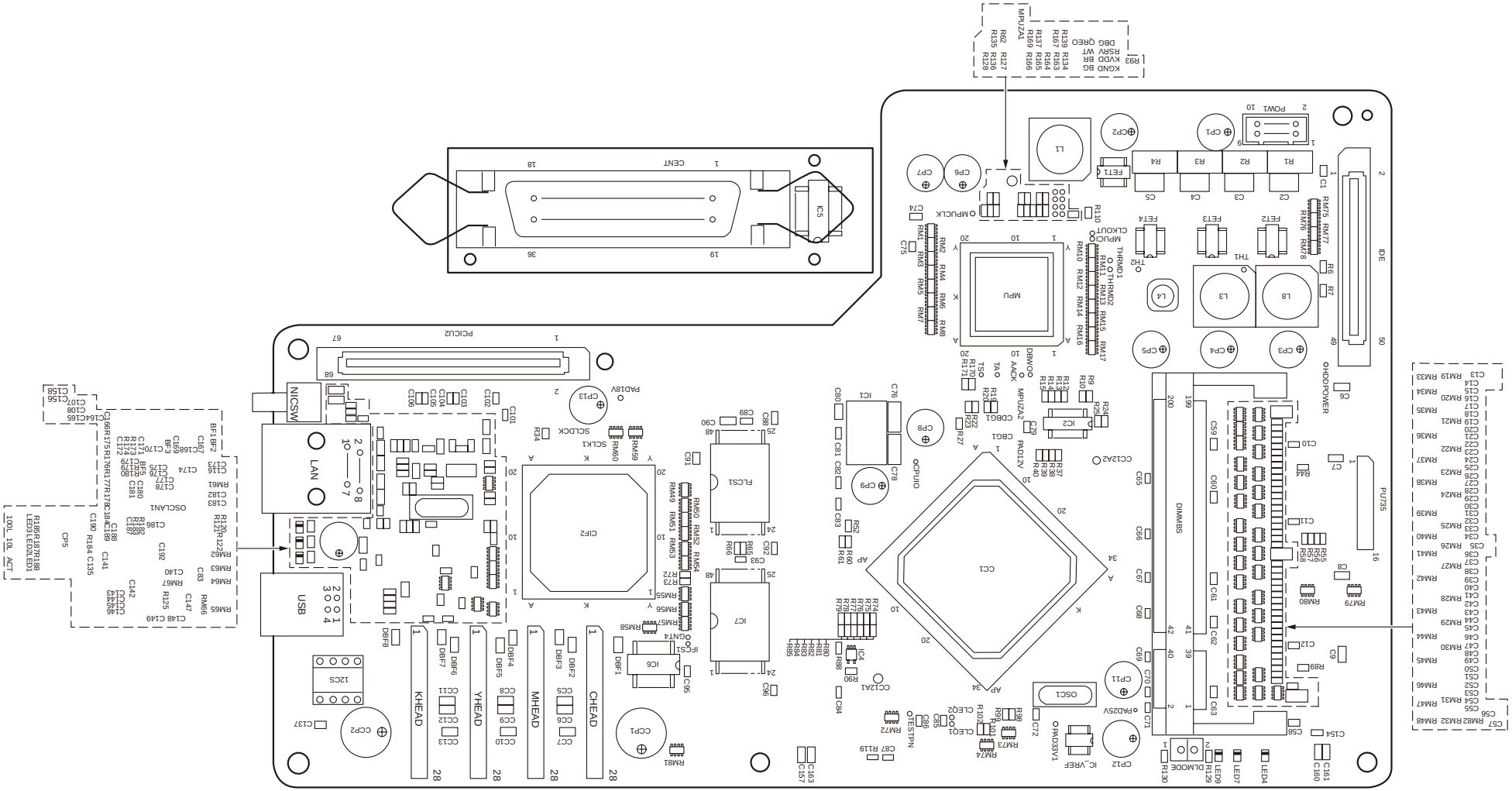


Soldering side

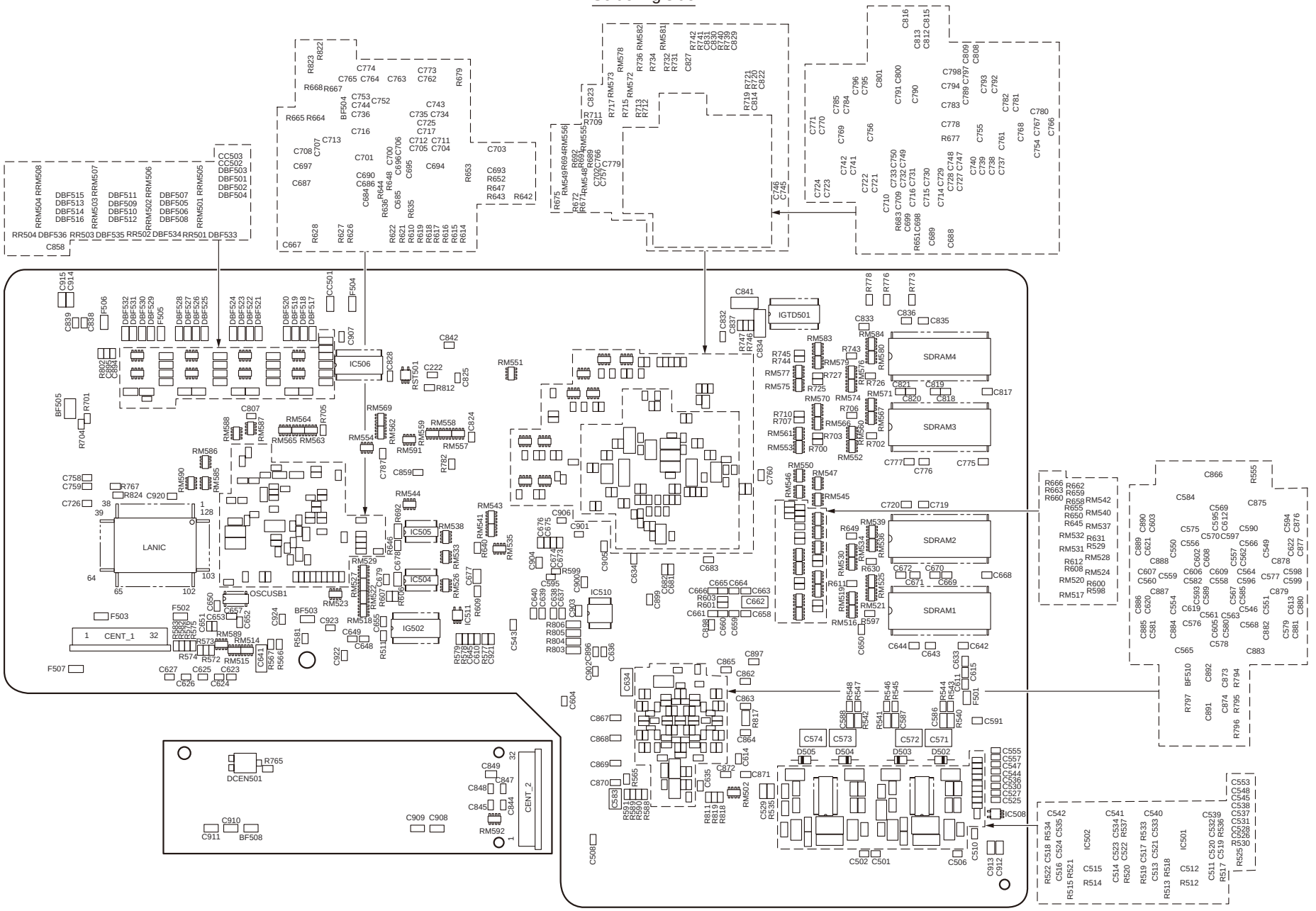


(2) Main Controller PCB

Component side

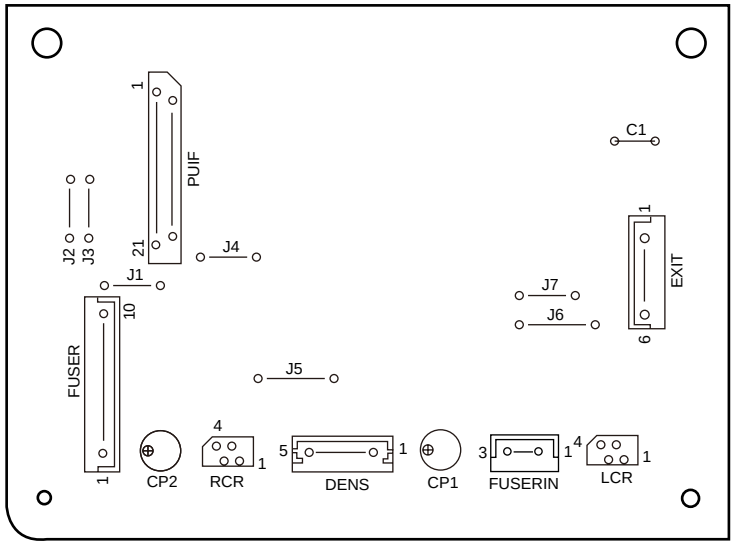


Soldering side

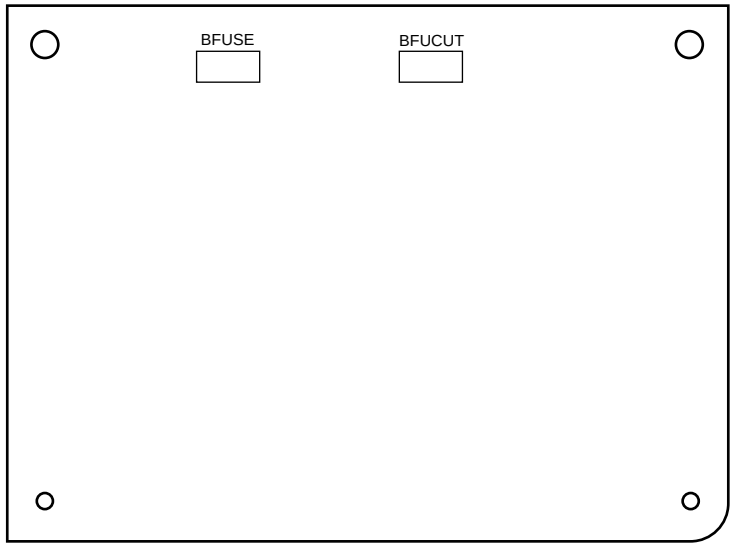


(3) Rellay PCB(P6Y PCB)

Component side

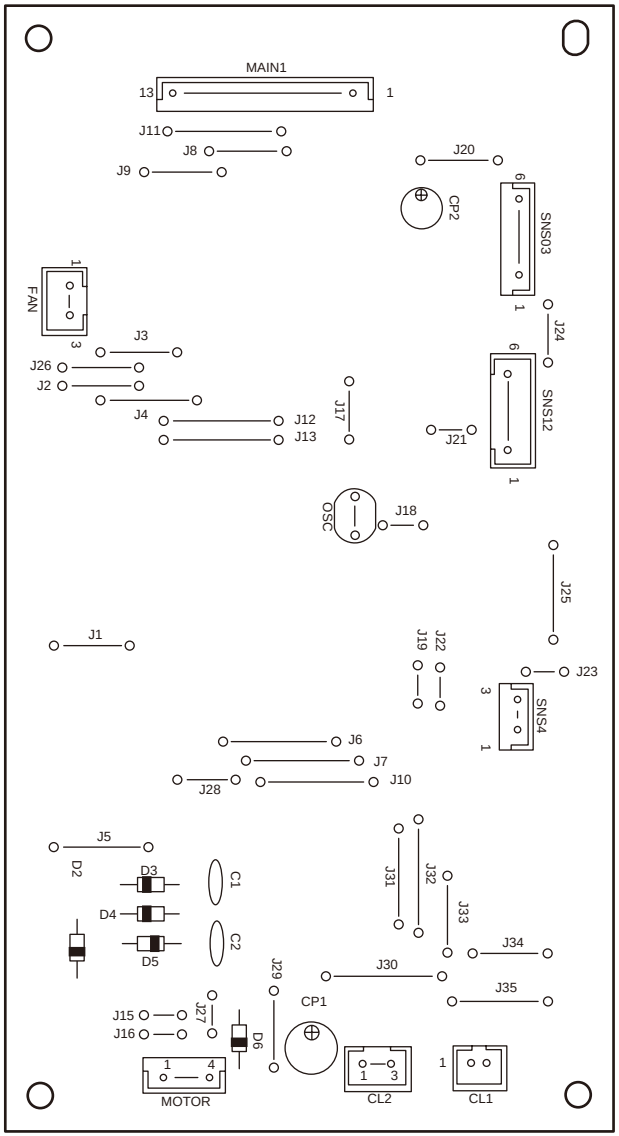


Soldering side

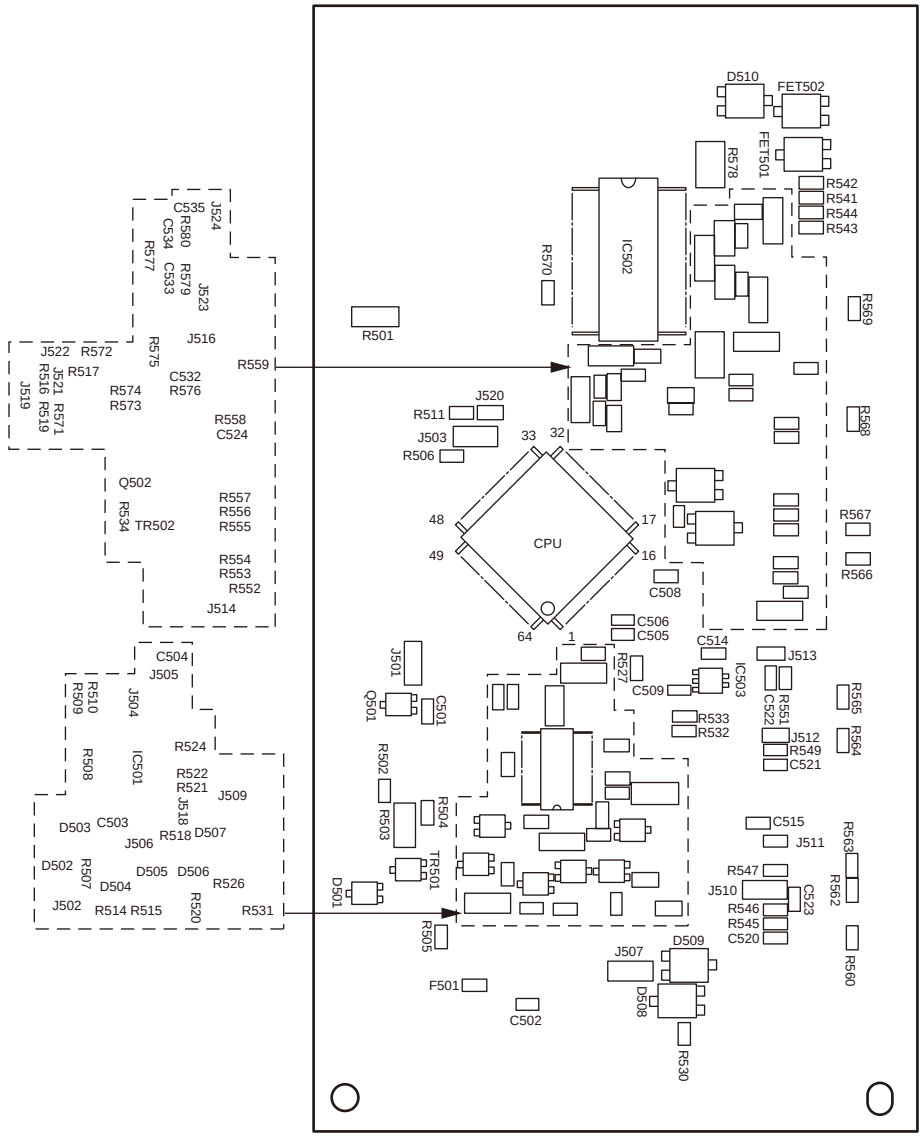


(4) Both-sided Printing Control PCB(V7Y-4 PCB)

Component side

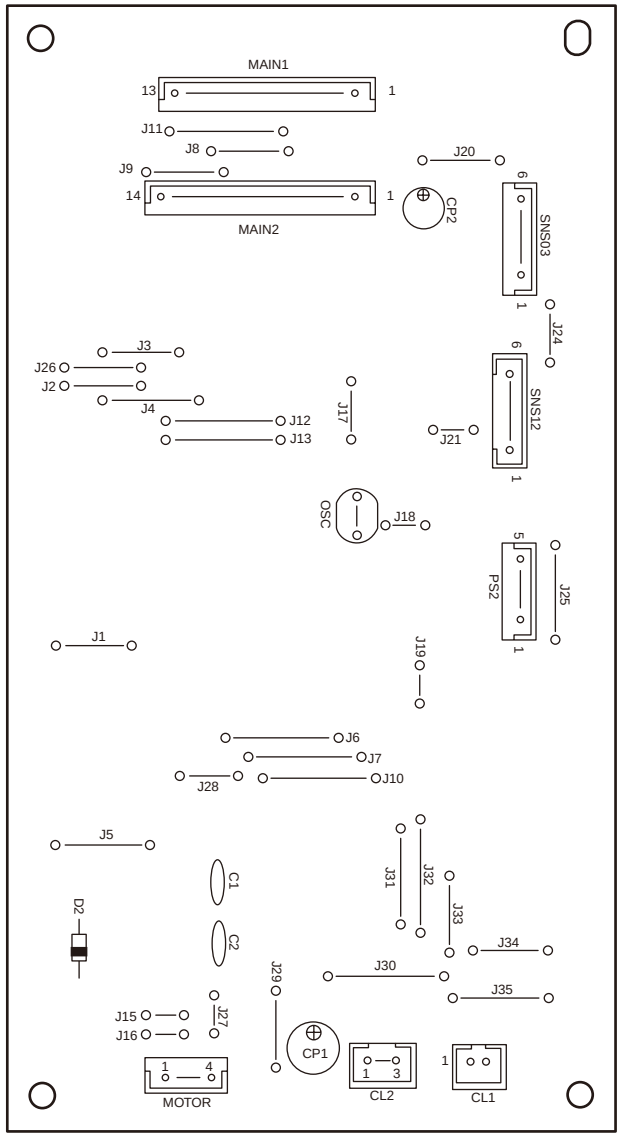


Soldering side

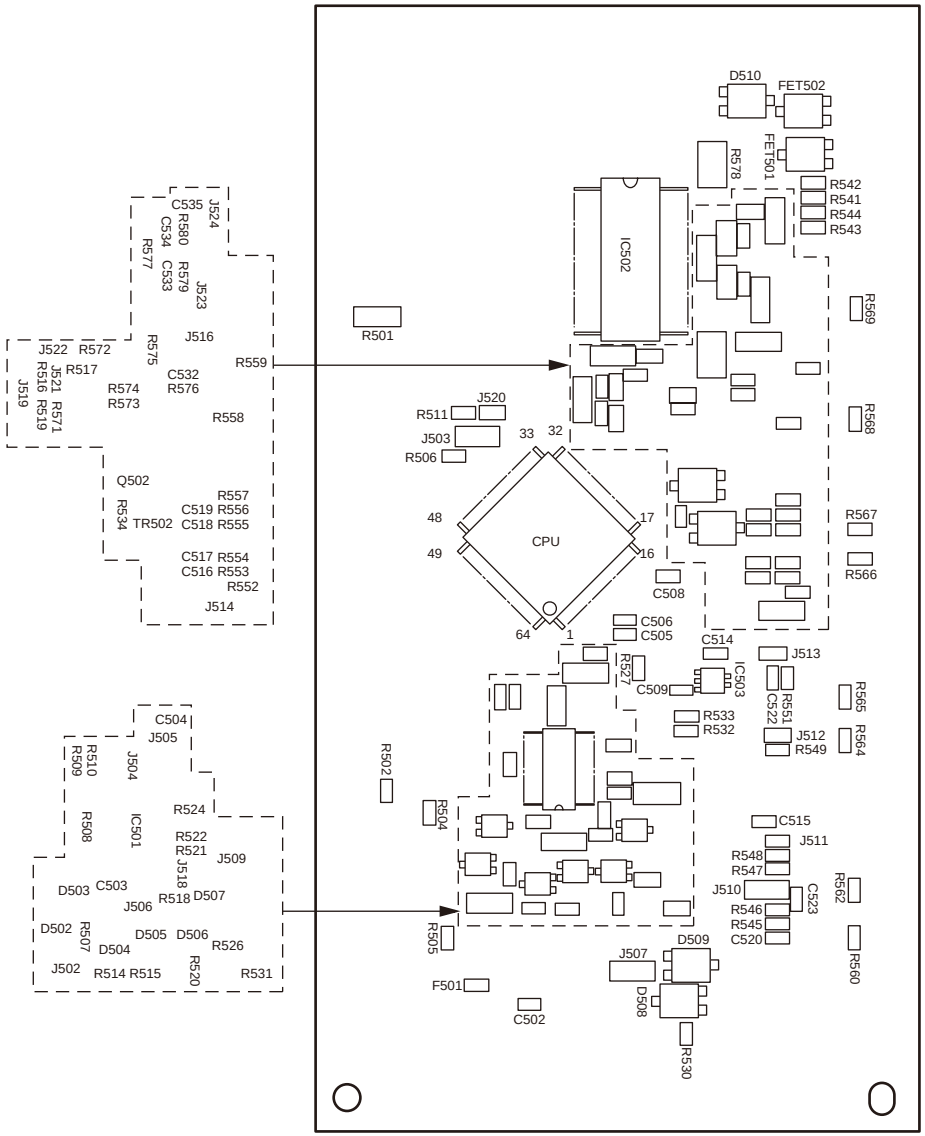


(5) Second Tray Control PCB(V7Y-11 PCB)

Component side

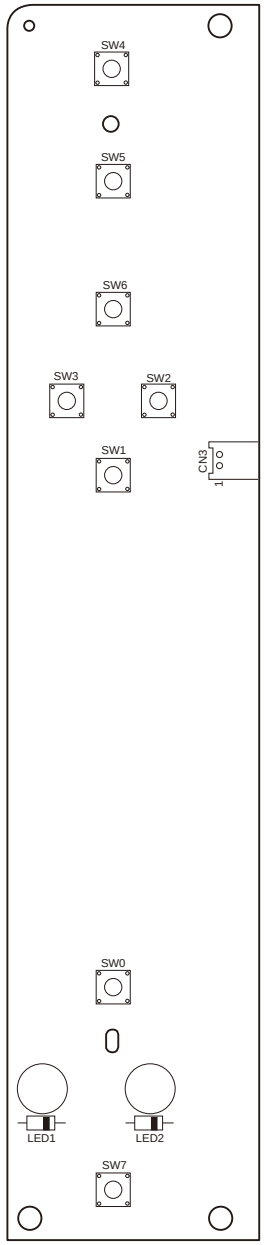


Soldering side

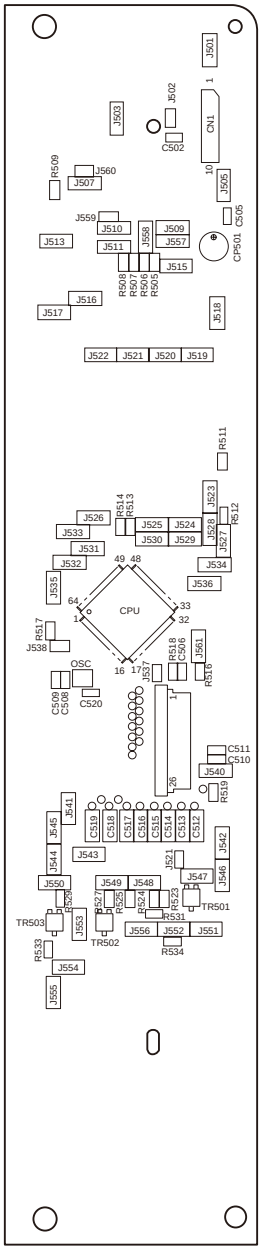


(6) Control Panel PCB(PRG PCB)

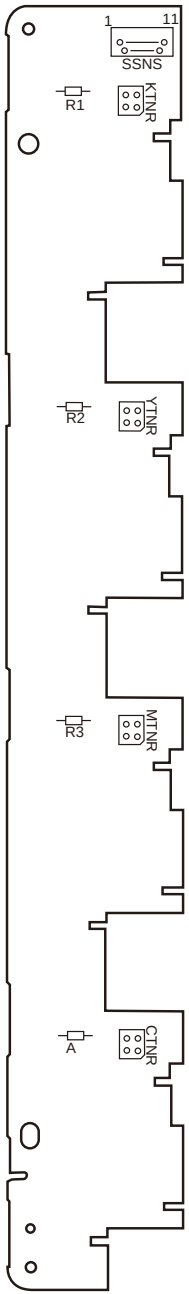
Component side



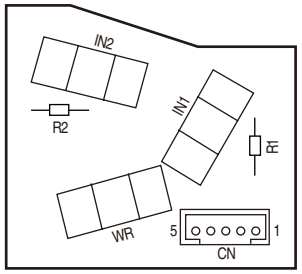
Soldering side



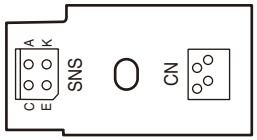
(7) Toner Low Sensor PCB(PRZ PCB)



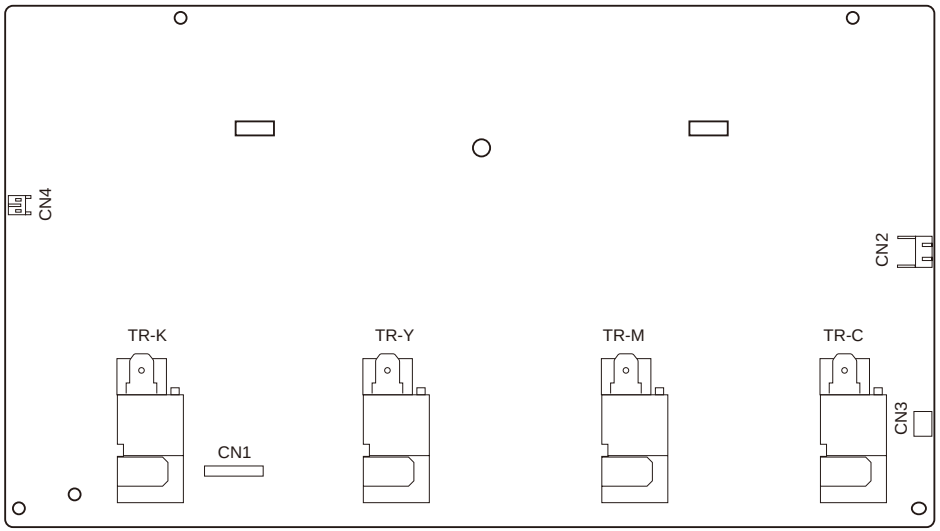
(8) Entrance Sensor PCB(RSF PCB)



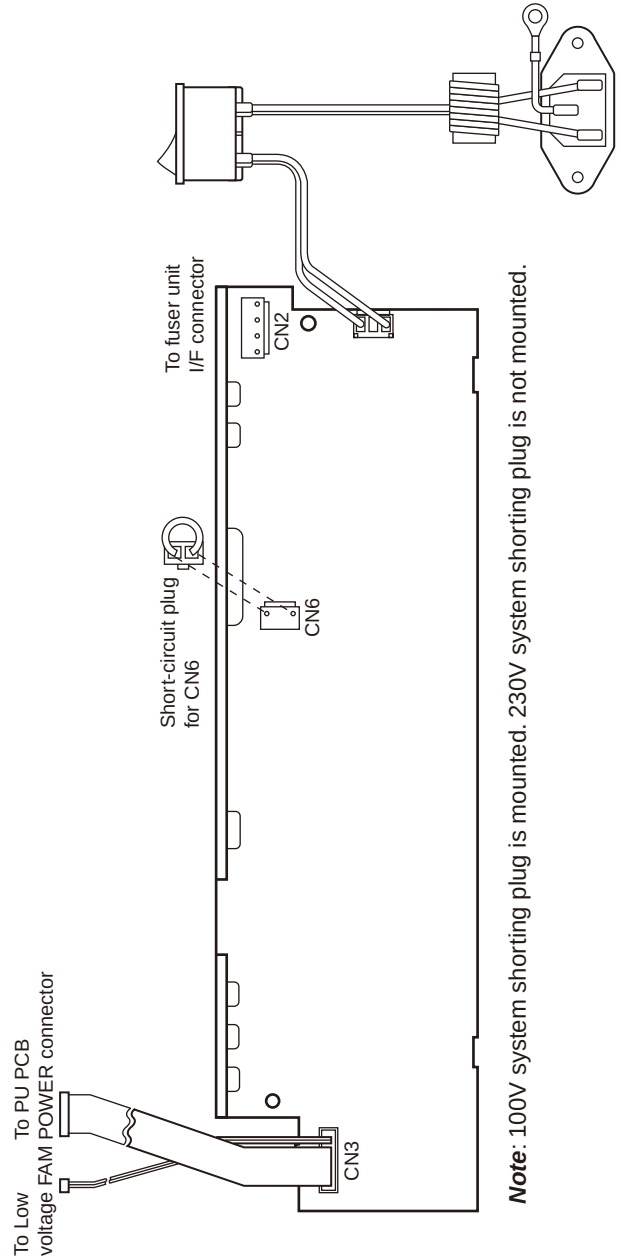
(9) Color Adjustment Sensor PCB(PRC PCB)



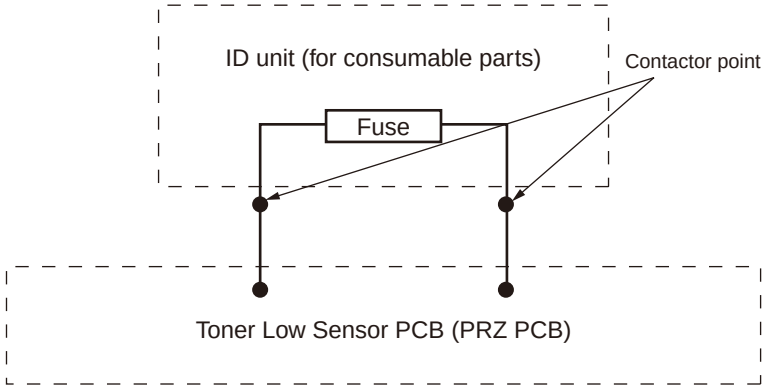
(10) High-Voltage Power Supply PCB

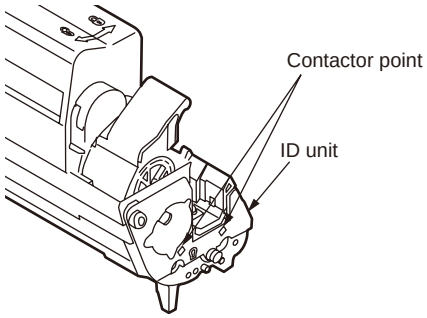


(11) Low-Voltage Power Supply PCB

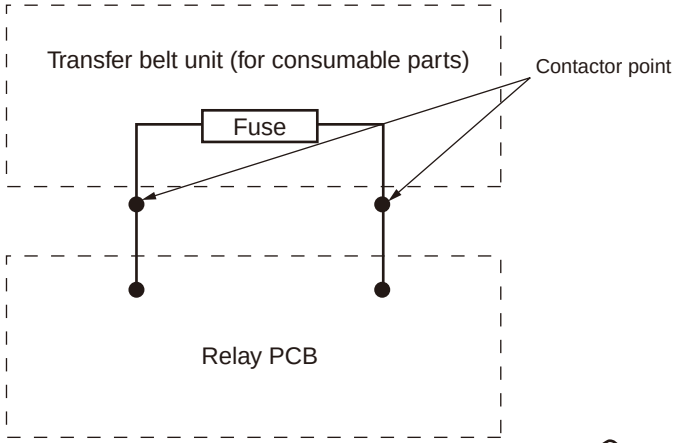


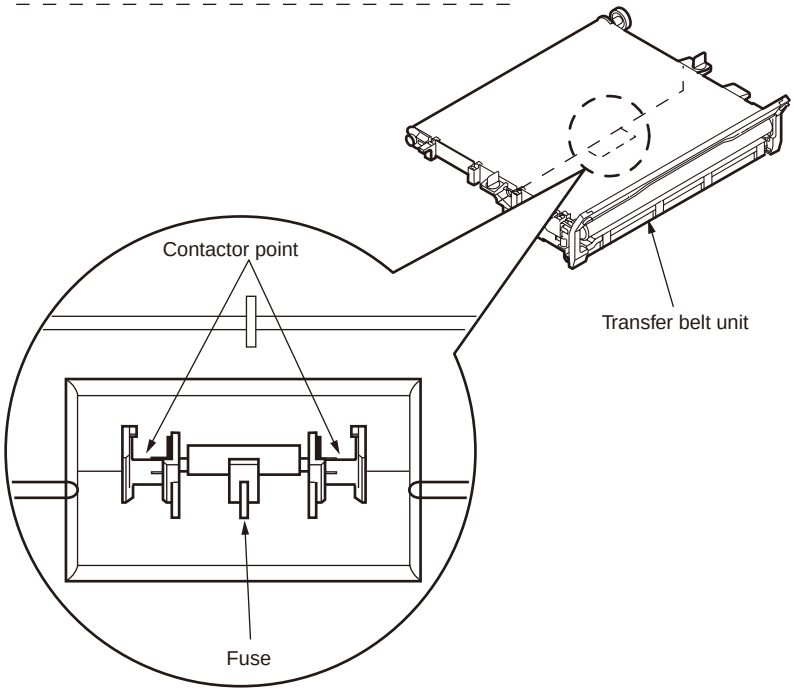
(12) ID unit





(13) Transfer belt unit





8.3 F/W version number

8.3.1 ROM control number

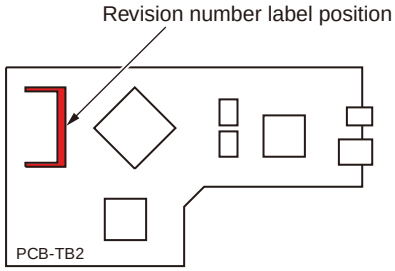
ROM nameplate version number fill-out version	Date	CU F/W 44161001FY02		NIC F/W 44161001FY03			Loader 44064801FY01 *		Remarks
		Rev.	File Rev.	NIC F/W	Web Page	File Rev.	Rev.	File Rev.	
1	2008.07.31	V1.02	1	01.01	W1.01	1	01.00	2	1st lot -

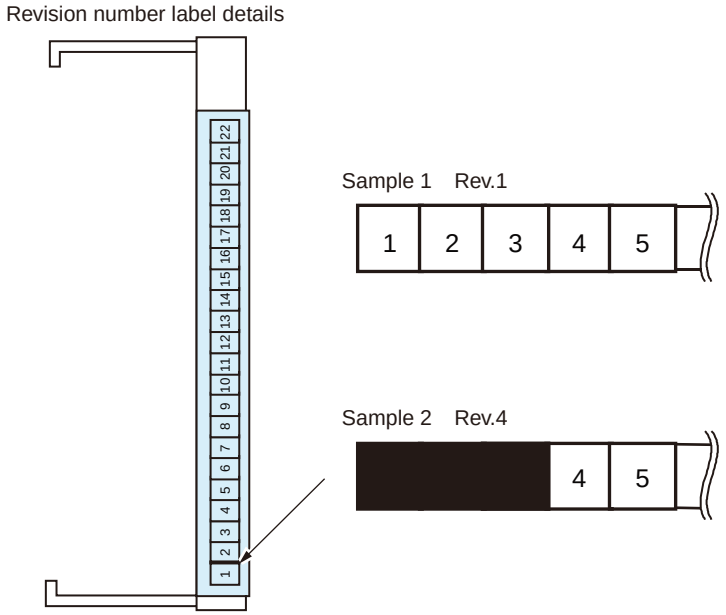
* Loader cannot be rewritten.

8.3.2 ROM version check and display

(1) Perform the menu map printing and confirm that the F/W version number has been upgraded.

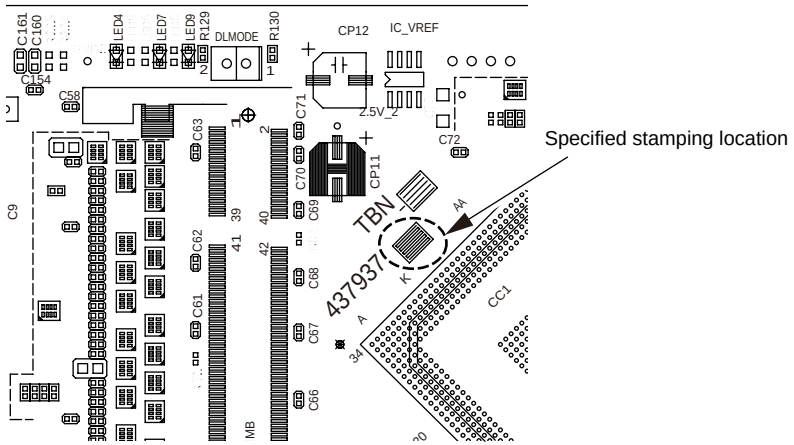
(2) Fill out the ROM label that is attached to the location shown below in accordance with the downloaded F/W version number.





8.3.3 PCB Maintenance Indication Stamp

The specified article numbers are stamped in the PCB Maintenance Indication column on the CU PCB in accordance with the table shown below.



Series No.	Maintenance Board Series No.	Board TB2(YU) Series No.	Use
01	437937 [41]	TB2-4 (43778804)	JPN_PX746PDL
02	437937 [42]	TB2-4 (43778804)	ODA_PX746PDL
03	437937 [43]	TB2-4 (43778804)	OEL_PX746PDL
04	437937 [44]	TB2-4 (43778804)	AOS_PX746PDL
05			
06			
07			
08			
09			
10			